View metadata, citation and similar papers at core.ac.uk

brought to you by CORE

provided by Illinois Digital Environment for Access to Learning and Scholarship Repository

MIDWESTERN CLIMATE INFORMATION SYSTEM (MICIS) USER GUIDE

Beth C. Reinke, James R. Angel,
and Kenneth E. Kunkel

August 1994

Midwestern Climate Center
Illinois State Water Survey
2204 Griffith Drive
Champaign, IL 61820
(217) 244-8226

MIDWESTERN CLIMATE INFORMATION SYSTEM (MICIS) USER GUIDE

Midwestern Climate Center
Illinois State Water Survey
2204 Griffith Drive
Champaign, IL 61820-7495
(217) 244-8226

August 1994

THE MIDWESTERN CLIMATE CENTER: AN OVERVIEW

The Midwestern Climate Center (MCC), located in Champaign, Illinois, is one of six federally funded regional climate centers. These centers collect and disseminate climate information and conduct applied research. The region served by the MCC includes the states of Illinois, Indiana, Iowa, Kentucky, Michigan, Minnesota, Missouri, Ohio and Wisconsin.

The MCC has three primary responsibilities:

- **Information delivery.** The principal medium through which the MCC disseminates climate information is the Midwestern Climate Information System (MICIS), an interactive, computer-based, dial-up service.

- **Development of specialized historical data sets.** Special historical databases have been developed and assembled to address specific problems and issues concerning the midwestern climate.

- **Applied research on climate issues.** Research projects are designed to define the key weather and climate factors that affect climate sensitive sectors of the Midwest. Research is intended to lead to the development of information products applicable to specific climate-related issues or problems.

ACKNOWLEDGEMENTS

Funding for development of the Midwestern Climate Information System (MICIS) was provided by the National Oceanic and Atmospheric Administration through the Regional Climate Center Program. Kenneth Kunkel is Director of the Midwestern Climate Center. Carl Lonnquist developed the MICIS software with programming support from Kenneth Kunkel and James Angel. Others offering helpful comments during system development included Stanley Changnon, Peter Lamb, Steven Hollinger, Michael Richman and Beth Reinke.

TABLE OF CONTENTS

INTRODUCTION

The Midwestern Climate Information System (MICIS) is a computerized near real-time information system that provides easy access to a wide variety of climate products (Kunkel et al., 1990). These include current temperature and precipitation data for several hundred climate stations throughout the midwestern United States, historical temperature and precipitation data for about 1,700 stations in the Midwestern Climate Center (MCC) region, climate summaries, long-range National Weather Service (NWS) and Climate Prediction Center (CPC) weather forecasts, regional soil moisture estimates and crop yield risk assessments. The primary region covered includes the states of Illinois, Indiana, Iowa, Kentucky, Michigan, Minnesota, Missouri, Ohio and Wisconsin. In addition, historical temperature and precipitation data are available for other states east of the Rocky Mountains. Because agriculture is a major sector of the midwestern economy and is sensitive to climate fluctuations, some products have been oriented to the needs of agriculture. However, many other products have general applicability. Users of the system include agribusinesses, researchers and utilities.

This user guide provides a brief introduction to the data and products available on MICIS and describes how to go about accessing them. Appendix A contains some sample MICIS products to help familiarize the user with the system. A regional climate division map is given in Appendix B. Appendix C contains state climate division and station maps for the nine-state MCC region. Daily real-time climate stations in the MCC region are listed in Appendix D, and hourly stations in and adjacent to the MCC region are listed in Appendix E.

The MICIS Database

Three basic types of data comprise the MICIS database, and most products are derived from these: 1) real-time climate data 2) historical climate data 3) supplemental data reports.

Data in the real-time database are updated daily. However, there are fewer observations available than in the historical database. Current data are collected in several ways. Some cooperative observers call in their observations to a local NWS office, which in turn, transmits the data over their national network. Only a fraction of the cooperative observers participate in this activity. Many observers are "event" reporters in that they report their observations only when certain criteria are met (i.e., they report only when precipitation occurs). In these instances the number of observations depends on the weather, and reports are typically higher when precipitation occurs. The hourly surface airways reports from NWS first-order stations are another component of the real-time MICIS database. Daily average values of temperature, relative humidity, potential evapotranspiration, dewpoint temperature, solar radiation, wind speed, wind direction, air pressure and cloud cover are calculated from the hourly surface airways reports. These real-time data provide a valuable resource for evaluating current conditions, but are of lower spatial density and contain a higher number of missing values than the historical data. Appendix D lists the near real-time stations in the MCC region and gives information on the reporting frequencies for these stations.

Historical data are obtained from the National Climatic Data Center (NCDC), which collects the data on paper forms each month from cooperative observers of the NWS. The cooperative observers form a dense network of roughly 200 stations in each of the midwestern states. Due to the length of processing time, we do not receive these data until eight to twelve weeks after the end of each month. For example, data for May will generally not be available until the end of July. Data for active stations can be accessed through MICIS as far back as 1948 and, in a few cases, back to the turn of the century. This type of data is characterized by high spatial density and few or no missing values, but is not as timely as the real-time data.

When you access climate data for a particular station, you will receive historical data up to the most recent month it is available and real-time data for the most recent one to three months. You do not have to separately ask for the two types of data. However, **you should be aware that the most recent one to three months of data are provisional and may change.**

Supplemental data reports in the MICIS database include NWS extended forecast products (medium-range station, three to five day state, six to ten day U.S.), CPC 30- and 90-day temperature and precipitation outlooks, weekly updates of the Palmer Drought and Crop Moisture Indices and NWS river and lake condition reports.

Data Processing

There are two categories of data processing on MICIS: 1) statistical and 2) physical process modeling.

Standard statistical analyses include the computation of means, extremes, standard deviations, number of days above and below thresholds, rankings, probability distributions and incomplete gamma distributions for precipitation probabilities.

Three classes of products result from physical process models: regional soil moisture estimates, com yield risk assessments and soybean yield risk assessments. The first two products result from a standard simulation model of corn growth and development, CERES-Maize (Jones and Kiniry, 1986). The soybean product is based on a similar model for soybeans, SOYGRO (Wilkerson et al., 1983).

GETTING STARTED

Hardware and Software Requirements

A user needs the following to communicate with MICIS:

- Character terminal or PC with terminal emulation software
- Modem (300-14,400 baud) or Internet Connection
- For modem systems, communications software set for 7 data bits, 1 stop bit, even parity and full duplex. Suitable software packages include ProComm and Crosstalk. For Internet communications, telnet software is required.
- Username and password

Subscription Information

MICK is accessible via telephone modem on a subscription basis. There are two primary classes of service. The fees and policies for these services follow. Prices are valid through at least December 1994.

1) Regular Service

Subscription fees are $35.00 per month for a minimum enrollment period of six months. The subscriber may cancel after the first month of the initial enrollment period if the system does not meet the user's needs. The monthly subscription fee provides the following services:

- Access to all MICIS products by telephone modem
- Free connect time of 10 minutes per month
- During the first month of enrollment, 60 minutes of free connect time. Additional connect time is available at the following rates up to a maximum of $40.00 per month (after $40.00, additional connect time is free).

8am-5pm	$0.20
5pm-9pm	$0.10
9pm-6am	$0.05
6am-8am	$0.10

Prepayment is required. Regular users will be billed on a semiannual basis for connect time charges and for regular monthly charges after the initial six month subscription period.

2) Limited Access Service

Account set-up charges are $50.00 plus a required minimum deposit of $25.00 for connect time. There is no monthly fee. Connect time rates are:

8am-5pm	$0.25
5pm-9pm	$0.17
9pm-6am	$0.10
6am-8am	$0.17

Accounts must be prepaid. When the account balance reaches zero ($0.00), it will be declared inactive, and the subscriber will not be allowed access until a deposit is made to the account. There is no limit on monthly connect time charges. The limited access user has access to daily climate data from all available stations as well as standard climatic summaries, statistically derived products and long-range forecast products. However, the limited access user **does not** have access to corn and soybean model yields, soil moisture estimates or regionally combined data.

Login Procedure

1) First, please remember to use lower case letters unless otherwise indicated as MICIS is case sensitive.

2) Boot your communications software package and enter the terminal or communications mode (consult your communications software documentation for help with this).

3) Dial the MICIS phone number (1-217-244-8392) or connect through Internet by telneting to mcc.sws.uiuc.edu (or 128.174.16.3).

4) Once a carrier has been detected or after you have successfully telneted to mcc.sws.uiuc.edu, press <Return> or <Enter>. If you receive an uninterpretable message, press the <Break> key and then press <Return> or <Enter>. You should see the following message:

SunOS UNIX (mcc.sws.uiuc.edu)

login:

Type in the login name assigned to you when your subscription was processed and then press <Return> or <Enter>.

5) The system will then prompt you for your password:

password:

Type in your password and then press <Return> or <Enter>. Your password may be any combination of alphanumeric characters and may be changed by you at any time by using the **Add or Change Password** option in the Utilities Menu.

6) After successfully entering a valid login/password, you should receive a welcome message similar to the following:

Last login: Wed Mar 2 12:03:30 from beth.sws.uiuc.ed
SunOS Release 4.1.3 (MICIS) #3: Thu Dec 23 08:30:15 CST 1993

Welcome to the Midwestern Climate Information System
Midwestern Climate Center

A ctrl-c will always terminate a given product and return you to the main menu.

Note: We would appreciate any questions or comments from you. Please give us a call (217-244-8226) or use the mail facility in the utilities menu.

Hit return or enter to continue >

7) Upon pressing "Return" or "Enter" the MICIS main menu will be displayed. At the main menu, the user may begin to access information from the MICIS databases. A description of each main menu choice follows, beginning on page 8.

General Information

We hope that the following brief tips will be helpful as you work through the MICIS menus:

1) Some of the products are displayed using the Unix version of the **More** command so that the information will not scroll off the screen before you have time to view it You can tell when this procedure is being used when you see the word **More** in the lower lefthand side of die screen. To get the next page of information, press the space bar. Pressing <Enter> or <Return> will advance the screen by one line.

2) The prompt for information from the user ends with >.

3) For a given product, values inside square brackets, **[],** are the default values. By pressing the <Enter> key you will automatically accept the default. For example, with:

Enter choice [1] >

the value 1 is used if no other response is given.

4) For a given product, values inside parentheses, (), are the range of valid values. For example, with:

Enter choice (1-12) >

the range of possible user choices is 1 through 12.

5) Most MICIS products derived from the historical or real-time climate data contain information for a particular station. Therefore, station selection is typically the first step required of the user. To choose a station the user may:

a) enter the six digit NCDC identification number directly (see Appendix D for daily climate station numbers)
b) select from a state or climate division list displayed on MICIS
c) select by station name by typing in one or several characters of the station name
d) select from a list of stations within a user defined latitude/longitude box
e) select from stations within the Great Lakes Basin

After a station has been selected, all subsequent menu options that require a station selection will assume the most recent station chosen as a default if no new selection is made.

NOTE: MICIS products based on hourly airport data require a different station selection procedure. The user either types in the three-character NWS station code or selects from a list of possible stations supplied by MICIS . A listing of the NWS hourly stations in and adjacent to the MCC region is given in Appendix E.

6) To help interpret some of the NCDC station names, the following abbreviations are often used:

WSO	NWS Weather Service Office
AP	Airport
WSFO	NWS Weather Service Forecast Office
5_NE	5 miles Northeast of the Post Office (similarly 3_SE, would indicate 3 miles Southeast of the Post Office, etc.)

Problems

If you have problems logging onto MICIS, contact the Midwestern Climate Center at: (217) 244-8226. Office hours are Monday-Friday, 8a.m.-12p.m. and lp.m.-5p.m., Central Standard Time, or you can leave a message on our voice mail at any time.

THE MICK MENU

Once the user has successfully logged onto MICIS (page 4), the MICIS main menu will be displayed as follows:

MICIS Main Menu

Choices:
0) Background Information
1) Daily Climate Observations(Temp,Precip)
2) Statistically Derived Variables
3) Climatic Summaries
4) Long Range Forecasts
5) Soil Moisture Estimates
6) Corn Yield Risk Assessment <- Now available
7) Soybean Yield Risk Assessment <- Now available
8) Drought Indices
9) Regional Data (Maps and Tables)
10) Daily Humidity,Wind,Pressure,Evaporation,Radiation Data
11) Illinois Climate Network Data
12) Growing Degree Day Information (regional and site-specific) <-- New
13) River and Lake Conditions <-- New

s) Status of DataBase
u) Utilities
h) Help
z) Logout

Enter Choice >

At the **Enter Choice** > prompt, the user can type a menu selection **(0-13,** s, u, h, or z) and press <Enter> or <Retum> to select an option. The following pages of the user guide will briefly review each of the main menu options and the products available.

Background Information Menu

At the main menu, enter choice 0, and the background information menu will be displayed:

Background Information Menu

1) Overview of MICIS System
2) Subscription Information
3) Current Climate Products
4) Historical Data Products
5) Statistical Calculations
6) Database Design
7) Sources of Data
8) Terminal Settings
9) General Information

q) Return to Main Menu

Enter Choice >

This option provides the user with on-line access to various MICIS documentation, similar to the information found in this user guide.

Daily Climate Observations Menu

At the main menu, enter choice 1, and the daily climate observations menu will be displayed:

Daily Climate Observations (temperature and precipitation)

Current Data By Region:

0) Mapped
1) Tabular

Historical Data By Station:

2) Station Selection (choose a station)

3) Estimate Missing Data For Products 4,5,6 (yes/no)
4) By Year
5) By Month
6) Between Two Selected Date
7) Selected Year, Last year and 30-Year Average
8) Multiple Station Summaries (Temp and Prec)
9) Multiple Station Summaries (Degree Days)
10) Multiple Station Summaries (Snowfall)

q) Return to Main Menu

Current Station: (234358) KANSAS_CITY_WSMO_AP

Enter Choice >

Choose this option to:

1) Examine daily data in the "current" database in either map or tabular format; or

2) Obtain a listing of daily values in the "historical" database for single or multiple stations.

The **Mapped** product (choice 0) provides a map of current climate data. When you initially use this product, you may find it beneficial to consult the following table. We have attempted to offer considerable flexibility with this product, using one or two letter product descriptors. However, it may require some practice before you are familiar with the abbreviations.

The user can specify the following: Area of Interest
Climate Element
Observation Date

Abbreviations:			
	p	==	**precipitation**
	sf	==	**snowfall**
	sd	==	**snow depth**
	lt	==	**low temperature**
	ht	==	**high temperature**
	lst	==	**low soil temperature**
	hst	==	**high soil temperature**
	ptot	==	**seven-day total precipitation**
	sftot	==	**seven-day total snowfall**
	d	==	**prompts for specific date**
	+	==	**increment date by one day**
	-	==	**decrement date by one day**
	mw	==	**nine states of the Midwest**
	MW	==	**nine states of the Midwest + four western states**
	UP	==	**Upper Peninsula of Michigan**
	il,ia,...	==	**state abbreviations**

One or more choices can be made at each prompt Multiple entries are separated by spaces. A plot is displayed when you press <Enter> or <Return>.

The prompt after the menu indicates the default choices. You may change these or accept the default map by entering a return.

After a map is displayed you will be prompted by Next > at the end of the tide line. A return redisplays the menu, or you can type different choices and see the next map immediately.

You can also specify the summation or average over x days by typing 10**day, 5day, 7day,** etc.

Examples:

To get a map of Illinois high temperatures, type:

il ht <Return>

To get a map of Indiana precipitation for the previous day, type:

in p - <Return>

The Tabular product lists current data for one or more days for a single state, a climate division or the entire region.

Daily climate observations are also available by station. First you must select a station (or use the current default station). To choose a station you may:

a) enter the six-digit NCDC identification number directly (see Appendix D for station numbers)

b) select from a state or climate division list displayed on MICIS

c) select by station name by typing in one or several characters of the station name

d) select from a list of stations within a user defined latitude/longitude box

After you have selected a station, all subsequent menu options that require a station selection will assume the most recent station chosen as a default. Historical data can be obtained for entire years, a single month or a user-selected time period. Multiple station summaries provide data for all stations with sufficient data in a climate division or state.

Some sample daily climate observations produc's are given in Appendix A (samples 1-6).

Statistical Products Menu

At the main menu, enter choice 2, and the statistical products menu will be displayed:

Statistical Products (means, standard deviations, percentiles, etc.)

Choices:

1) Station Selection (choose a station)
2) Monthly/Annual Climate Data
3) Monthly Data for Selected Year, Previous Year, and 30-Year Average
4) Daily Average Degree Day Data for a Given Season and Averaging Period
5) Daily Average Temperature Data for a Given Season and Averaging Period
6) Temperature Percentiles
7) Temperature Percentiles plus Mean and Standard Deviations
8) Precipitation Percentiles (Gamma Distribution)
9) Threshold Search for Special Events
10) Threshold Search for Runs of Special Events
11) 1961-1990 Normals From NCDC <--New
q) Return to Main Menu

Current Station: (234358) KANSAS_CITY_WSMO_AP

Enter Choice(s) >

Statistically derived products include averages, totals, extremes, number of days above and below thresholds and climatic probabilities for temperature and precipitation. For example, this would be the place to obtain a listing of month by month total precipitation for the last eight years for a particular station. Since all products here are for a single station, station selection should be done first. The **Threshold Search for Special Events** identifies dates or counts days that meet certain criteria.

Some sample statistical products are given in Appendix A (samples 7-12).

Climate Summaries Menu

At the main menu, enter choice 3, and the climate summaries menu will be displayed:

Climatic Summaries (by station)

Choices:
1) Station selection (choose a station)
2) Temperature Summary
3) Precipitation Summary
4) Heating/Cooling Degree Day Summary
5) Growing Degree Day Summary
6) Growing Season Summary
7) Climate Calendar
71) Climate Calendar (spreadsheet format)
8) Temperature Percentiles
9) Precipitation Percentiles (Gamma Distribution)
10) Sunrise-Sunset Times
11) Climate Atlas (maps of climate statistics)
12) Weekly Summaries
13) Monthly Illinois Summary
14) Monthly Midwestern Climate Impacts
15) Champaign-Urbana Monthly Summaries
16) 1961-1990 Normals from NCDC <-- New
17) Maximum Temperature Threshold Climatology
q) Return to Main Menu

Current Station: (234358) KANSAS_CITY_WSMO_AP

Enter Choice(s) >

This section of MICIS produces a variety of single station climatic summary tables. As with the statistical products, station selection should be performed first. These products can be used to quickly describe the climate of a location.

Some sample climatic summary products are given in Appendix A (samples 13-20).

Long Range Forecast Menu

At the main menu, enter choice 4, and the long range forecast menu will be displayed:

Forecast Menu (from the National Weather Service)

1) 5 Day
2) 6-10 Day
3) Medium Range Forecast by Day (1 to 8 Days Ahead) <-- NEW

4) 30-Day Written
5) 30-Day Tabular
6) 30-Day Temperature Forecast By Major Cities - Mapped
7) 30-Day Precipitation Forecast By Major Cities - Mapped
8) 90-Day Written
9) 90-Day Tabular
10) 90-Day Temperature Forecast By Major Cities - Mapped
11) 90-Day Precipitation Forecast By Major Cities - Mapped

12) Daily 7 Day Min/Max Temp
13) El Nino - Southern Oscillation (ENSO) Advisory

e) Long-range Explanation
h) Seven Day Help
q) Return to Main Menu

Enter Choice >

The long range forecast products are obtained directly from the NWS and the CPC and are provided as a service to the user. The MCC provides no interpretation or enhancement of the forecast products.

A sample NWS state forecast product can be found in Appendix A (sample 21).

Soil Moisture Estimates Menu

At the main menu, enter choice 5, and the soil moisture estimates menu will be displayed:

Soil Moisture by Climate Division (using water-balance model)

THIS IS AN EXPERIMENTAL PRODUCT BASED ON A COMPUTER MODEL OF THE SOIL WATER BALANCE.

The model uses daily average climate data from all available stations in a climate division, assumes that corn is the cover crop, and uses the soil characteristics of the dominant soil in that climate division. The results are most useful when compared with model estimates from previous years.

Choices:

1) Mapped Soil Moisture
2) Tabular Soil Moisture

h) Explanation
q) Return to Previous Menu

Enter Choice >

Soil moisture content estimates for the upper soil layers are provided in this section of MICIS. The estimates are based on a soil moisture model (Kunkel, 1990), which uses measured values of precipitation and temperature and assumes that corn is the crop grown in the soil representative of the region. In addition, one should be aware of the following aspects of the modeling effort:

1) Estimates are averaged over an entire climate division and are not provided for individual stations.

2) For each climate division the estimates are based on the soil characteristics of the dominant soil type for crops in that climate division.

3) The user can choose the depth of the soil layer in four to ten inch increments from a depth of four inches to six feet.

4) Values are expressed as inches of water, deviation from average conditions, percentage of potential plant available moisture (PPAM) and deviation from average plant available moisture. Plant available moisture is the amount of water in the soil that is available for use by the plant.

5) The values are updated daily with new values generally available by 11a.m. Central Standard Time.

A sample soil moisture product is given in Appendix A (sample 22).

Corn Yield Risk Assessment Menu

At the main menu, enter choice 6, and the com yield risk assessment menu will be displayed:

Corn Yield Risk Assessment by Crop Reporting District (using CERES-Maize model)

THIS IS AN EXPERIMENTAL PRODUCT BASED ON A COMPUTER MODEL OF THE GROWTH AND DEVELOPMENT OF CORN.

Updates are made every Tuesday morning or when conditions warrant it
States available: IL IN IA KY MI MN MO OH WI NE ND SD KS

Choices:

1) Probability Distribution of Model Yields <-- New feature added
2) Model Yields Categorized by 30-Day Weather Types
3) Model Yields Categorized by 90-Day Weather Types
4) Model Yields Selected on the Basis of Latest NWS 30-Day Forecast
5) Model Yields Selected on the Basis of Latest NWS 90-Day Forecast
6) Model Yields with Specific Weather Years Used to Finish Growing Season
7) Corn Yield Advisory
8) Time History of Regional average yields

h) Explanation
q) Return to Previous Menu

Enter Choice >

The corn yield risk assessment products provide a quantitative assessment of how current and possible future climate conditions may affect corn yields in the region. The CERES-Maize crop development and simulation model is used to produce these assessments (Jones and Kiniry, 1986; Kunkel and Hollinger, 1991).

Sample corn yield risk assessment products are given in Appendix A (samples 23-24).

Soybean Yield Risk Assessment Menu

At the main menu, enter choice 7, and the soybean yield risk assessment menu will be displayed:

Soybean Yield Risk Assessment by Crop Reporting District (using SOYGRO model)

THIS IS AN EXPERIMENTAL PRODUCT BASED ON A COMPUTER MODEL OF THE GROWTH AND DEVELOPMENT OF SOYBEANS

Please refer to the explanation for details about this product. Updates are made every Tuesday morning or when conditions warrant it

Choices:

1) Probability Distribution of Model Yields <– New feature added
2) Model Yields Categorized by 30-Day Weather Types
3) Model Yields Categorized by 90-Day Weather Types
4) Model Yields Selected on the Basis of Latest NWS 30-Day Forecast
5) Model Yields Selected on the Basis of Latest NWS 90-Day Forecast
6) Model Yields with Specific Weather Years Used to Finish Growing Season
7) Soybean Yield Advisory
8) Time History of Regional Average Yields

h) Explanation
q) Return to Previous Menu

Enter Choice >

This option provides the same information as the corn yield risk assessment products, except for soybeans. A comparable crop development and simulation model, SOYGRO, is used (Kunkel and Hollinger, 1991; Wilkerson et. al.,1983).

A sample product of the soybean yield risk assessment in given in Appendix A (sample 25).

Drought Indices Menu

At the main menu, enter choice 8, and the drought indices menu will be displayed:

Drought Indices by climate division (from the Climate Analysis Center)

Choices:

1) Weekly Palmer Drought Index - table for this week (updated Tuesday p.m.)
2) Weekly Palmer Drought Index - table for last week (updated Tuesday p.m.)
3) Weekly Palmer Drought Index - map (updated Tuesday p.m.)

4) Historical Palmer Indices Over Time (tabular)
5) Historical Palmer Indices Over Space (tabular)
6) Mapped Historical Palmer Indices

7) Probability Projections of the Palmer Drought Index

h) Explanation of Palmer Drought Index
q) Return to Previous Menu

Enter Choice >

This section provides access to current and historical values of the Palmer Drought Indices, as well as probability projections. All products are based on climate division averages. A map product is available that includes the following options: drought indices, temperature and precipitation.

The Palmer Drought Index is a relative index where the value of 0 indicates normal conditions; positive values indicate wet conditions; and negative values indicate dry conditions. Values greater than +3 or less than -3 indicate unusual conditions with the following descriptors:

Greater than +4	--	extreme wetness
+3 to +4	--	severe wetness
-3 to -4	--	severe drought
Less than -4	--	extreme drought

Appendix A gives several examples of drought index products available on MICIS (samples 26-28).

Regional Data Menu

At the main menu, enter choice 9, and the regional data menu will be displayed:

Regional Historical Data by Climate Division/State/Region

Choices:

1) Historical Monthly Data Over Time (tabular)
2) Historical Monthly Data Over Space (tabular)
3) Historical Monthly Data Over Space (mapped)

4) Regional Data between Two Dates (tabular) <-- Degree Day Info Added
5) Regional Data between Two Dates (mapped)

6) State-averaged Precipitation Summary
7) State-averaged Temperature Summary
8) Ranking of state-averaged Data
9) Multiple Station Summaries by Climate Division
10) Gridded Temperature/Precipitation/Degree Day Fields
11) Monthly Degree Day/Temperature/Precipitation Data by Climate Division
12) Ranking of Climate Division Precipitation/Temperature Info <-- New
13) Expected Frequencies of Precip/Temperature Between Two Time Periods <--New

q) Return to Main Menu

Enter Choice >

This option provides historical values of temperature, precipitation and the Palmer Drought Indices for a climate division, state or the midwestem region.

Appendix A gives examples of regional data products available on MICIS (samples 29-34).

Daily Humidity, Wind, Pressure, Evaporation, Radiation Data Menu

At the main menu, enter choice **10,** and the daily humidity, wind, pressure, evaporation and radiation menu will be displayed:

Products based on Airport Hourly Data (No Data prior to April 1,1990)

1) Station Selection (choose a station)
2) Mapped Data
3) Single Station Data by Month
4) Multiple Station Summaries (multiple days)
5) Multiple Station Summaries (1 day)
6) Historical Hourly Statistics for Selected Stations <-- New
7) Historical Daily Statistics for Selected Stations <— New
8) Historical Monthly/Annual Statistics for Selected Stations <-- New
9) Climate Calendar for Selected Stations <-- New

h) Background Info
q) Return to Main Menu

Station: (ORD) CHICAGO_OHARE_WSO_AP, IL

Enter Choice >

This option provides daily averages of hourly data collected at airports. State or regional maps are available, as are single- or multi-station summaries. Station selection for hourly data products is different than described earlier for products based on daily data. The user selects a station by entering a three-letter NWS station code. If the station code is not known, MICIS will display a list of stations available by state. A listing of the NWS hourly stations in and adjacent to the MCC region is given in Appendix E.

A sample product derived from hourly data can be found in Appendix A (sample 35).

Illinois Climate Network Menu

At the main menu, enter choice **11,** and the Illinois Climate Network menu will be displayed:

The Illinois Climate Network (ICN) provides detailed daily climate data for 18 stations in Illinois. The ICN is operated by the Illinois State Water Survey (Illinois Department of Energy and Natural Resources) under the direction of Dr. Steven Hollinger. Data are available by month beginning with January 1990. Data are normally updated on Monday, Wednesday and Friday afternoons.

Illinois Climate Network (ICN)

Enter last two digits of year (i.e. 1990 = 90) or q to quit >

This option provides access to data from a special automated climate network ran by the Illinois State Water Survey. Data are available for 19 Illinois sites and consist of temperature, relative humidity, wind speed and direction, solar radiation, precipitation, and soil temperature at four and eight inch depths. Dew point temperatures and evapotranspiration are derived from the measured parameters.

A sample Illinois Climate Network (ICN) summary table can be found in Appendix A (sample 36).

Growing Degree Day Information Menu

At the main menu, enter choice 12, and the growing degree day information menu will be displayed:

Growing Degree Day Information (Regional and Site-Specific)

The first products have been added due to the increased concerns in the last two years of accumulating sufficient degree days for crop development. The other products are also found elsewhere in the menu, but are included here for convenience. Daily and monthly values for individual stations are not found here, but rather under main menu options 1 and 2.

Choices:

1) Station Selection (choose a station)
2) Degree Day Projections by Climate Division
3) Degree Day Projections by Crop Reporting District
4) Daily Average Degree Day Data for a Given Season and Averaging Period
5) Gridded Temperature/Precipitation/Degree Day Fields
6) Monthly Degree Day/Temperature/Precipitation Data by Climate Division
7) Growing Degree Day Climatic Summary(long-term averages)
8) Multiple Station Summaries (Degree Days)

q) Return to Main Menu

Enter Choice >

The growing degree day is a concept used to estimate crop growth and development. The basic concept is that growth and development will occur only when the temperature exceeds some minimum developmental threshold. Above that threshold, the rate of development will increase linearly as the temperature increases. Growing degree days (GDD) are calculated as follows. First the
average temperature for a day, T_a, is calculated. This is given by

$$T_a = (T_{max} + T_{min})/2$$

where T_{max} is the maximum daily temperature and T_{min} is the minimum daily temperature. The number of degree days for a single day is then given as follows

$GDD = T_a - T_{base}$ if T_a is greater than T_{base}
$GDD = 0$ if T_a is less than or equal to T_{base}

where T_{base} is the base or minimum developmental threshold temperature. For monitoring corn development, if the daily maximum temperature exceeds 86F, it is set equal to 86F, and if the minimum temperature is below 50F, it is set equal to 50F. To accumulate growing degree days, the daily GDD values are typically accumulated from the date of planting.

Of particular concern in recent years is whether enough degree days will be accumulated through the growing season to mature the crop. The first two products will accumulate average degree days from a user-selected date (planting date) to the first fall frost on either a climate division or crop reporting district basis. These products can be used to aid hybrid selection. Historical daily and average degree day reports can also be generated on a single- and multi-station basis. In addition, regional temperature and precipitation data can be accessed from this menu. Although these products can be found elsewhere on MICIS, they are also included here as a convenience to complement the degree day information.

Sample growing degree day products can be found in Appendix A (samples 37-38).

River and Lake Conditions Menu

At the main menu, enter choice 13, and the river and lake conditions menu will be displayed:

NWS River Stages and Lake Conditions

These products are developed and released by the National Weather Service. Only the most current reports are available.

Choices:

1) Flooding conditions across the U.S.
2) River Forecast for Ohio/Lower Mississippi
3) River Forecast for Upper Mississippi
4) Illinois River Conditions
5) Indiana River Conditions
6) Iowa River Conditions
7) Kentucky River Conditions
8) Minnesota River Conditions
9) Missouri River Conditions
10) Wisconsin River Conditions
11) Great Lakes Conditions

q) quit

Enter choice >

Because of the 1993 Mississippi River flooding, we have added the NWS river stages and lake conditions statements to MICIS. These messages are passed on as received from the NWS and are provided as a service to the user. MCC provides no interpretation or enhancement of these statements.

A sample river and lake conditions product can be found in Appendix A (sample 39).

Status of Database

At the main menu, enter choice s, and a message describing the status of the MICIS database will be displayed:

The status of daily data in the MICIS database is as follows:

Weather wire data available through 5/31/94
Preliminary data from National Climatic Data Center through 1/31/94
Final quality controlled data from National Climatic Data Center through 10/31/94

Utilities Menu

At the main menu, enter choice u, and the utilities menu will be displayed:

Utilities Menu

m) Mail Menu

p) Add or Change Password
d) Display Recent Logins
a) Display Recent Accounting Records (Limited Subscriptions)

t) Set Terminal and Printer Options

q) Return to Main Menu

Enter Choice >

This option allows the user to perform the following functions:

1) Send mail to MCC personnel. We appreciate any comments or suggestions.
2) Change your password. For your protection, we recommend using a password that is not obvious and changing it frequently.
3) Display recent logins and accounting records. This allows you to monitor your system usage. You may find this useful if there are multiple users on your account.

Help

At the main menu, enter choice h, and the following general information about each main menu option will be displayed:

BACKGROUND INFORMATION
- general information about the system, the data, access, and fees

DAILY CLIMATE OBSERVATIONS
- displays the daily historical data for temperature, rain, snow, degree days, etc, in several different formats (by year or month or between two dates) for a given station

STATISTICALLY DERIVED VARIABLES
- monthly means or sums of climate data, percentiles of temperature and precipitation

CLIMATIC SUMMARIES
- for user selected period summarizes the long-term climate data by month and year. For example, the mean January temperature, the record high January temperature, average snow for a given station.

LONG-RANGE FORECASTS
- standard 5-, 10-, 30-, and 90-day NWS forecast

SOIL MOISTURE ESTIMATES
- water-balance model used to estimate soil moisture by climate division (same model used in the corn and soybean yield scenarios)

CORN YIELD SCENARIOS
- uses the Ceres-Maize model, output by climate division

SOYBEAN YIELD SCENARIOS
- uses the Ceres-Soybean model, output by climate division

DROUGHT INDICES
- Palmer indices and monthly precipitation anomalies provided by CAC. Historical monthly Palmer, precipitation, and temperatures provided by NCDC.

REGIONAL HISTORICAL DATA
- Historical monthly Palmer drought indices, precipitation, and temperatures provided by NCDC.

UTILITIES
- mail, change of password, login history

Hit return or enter to continue >

Additional helpful information is available from the main menu in option **0) Background Information.**

REFERENCES

Jones, C. A. and J.R. Kiniry, 1986: *CERES-Maize A Simulation Model of Maize Growth and Development*. Texas A & M University Press, 194pp.

Kunkel, K.E., 1990: Operational soil moisture estimation for the Midwestern United States. *J. Appl. Meteor.,* 29,1158-1166.

Kunkel, K.E. and S.E. Hollinger, 1991: Operational large area corn and soybean yield estimation. *Preprint: 20th Conference on Agric. and Forest Meteor.,* Sept 10-13, 1991, Salt Lake City, UT. American Meteorological Society, Boston, MA.

Kunkel, K.E., C. Lonnquist and J.R. Angel, 1990: A real-time climate information system for the midwestem United States. *Bull. Amer. Meteor. Soc,* 71,1601-1609.

Wilkerson, G.G., J.W. Jones, K.J. Boote, K.T. Ingram and J.W. Mishoe, 1983: Modeling soybean growth for crop management. *Trans. of the ASAE,* 26,63-73.

APPENDIX A.

Sample Products

The following pages give samples of MICIS products, along with the menu choices to access them. User entries are in bold print. For each product displayed, the main and secondary menu choices are given, but the menus are not shown. Listings of the main and secondary menus can be found in "The MICIS Menu" section of the user guide. Where necessary, menus below the first two levels are displayed. The products are shown as they would appear on your screen. The following products are given:

While this list is not exhaustive, it provides a good sample of the types of products available on MICIS, and we hope that working through these examples will help familiarize you with MICIS.

1. Daily climate data for one element hy year

Main Menu Choice: 1 (Daily Climate Observations(Temp,Precip))
Secondary Menu Choice: 4 (By Year)

Do you want: time series (1) or screen format (2) [2] > 2

1) precipitation
2) minimum temperature
3) maximum temperature
4) snow fall
5) snow depth
6) mean temperature
7) heating degree days (default: base 65)
8) cooling degree days (default: base 65)
9) growing degree days (default: base 50)
10) corn growing degree days (base: 50, ceiling: 86)
q) Quit

Choices Should be Separated by Blanks
Enter Choices(s) > 3

Enter Beginning Year (4-digits) [1994] > 1993
Enter Ending Year (4-digits) [1994] > 1993

Station: (117382) ROCKFORD_WSO_AP
Year: 1993
Element: Maximum Temperature (F)

Day	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	18	34	41	32	73	63	75	86	75	66	45	43
2	35	35	39	36	71	56	87	79	77	50	46	46
3	42	42	40	46	71	56	89	77	75	72	52	43
4	41	46	40	46	72	57	85	73	77	67	56	42
5	26	46	44	43	75	73	87	75	74	65	47	39
6	23	33	44	55	79	74	81	74	71	80	29	39
7	26	34	40	58	77	70	79	77	73	83	43	34
8	24	33	41	60	85	83	83	81	70	81	50	37
9	26	34	43	56	86	78	83	76	72	46	51	51
10	24	35	36	62	87	81	87	86	64	53	48	49
11	28	33	29	50	83	80	83	89	70	58	57	32
12	33	30	28	47	84	82	78	86	83	56	50	38
13	33	31	21	54	66	84	80	89	74	55	63	41
14	24	28	22	45	79	80	79	87	71	66	45	41
15	21	28	47	41	68	73	79	84	53	69	42	50
16	30	30	43	38	66	77	82	84	61	64	39	39
17	28	17	24	60	63	91	81	84	69	61	49	40
18	25	20	32	65	65	85	87	85	64	62	45	39
19	24	26	33	55	62	84	86	82	62	66	46	35
20	35	32	37	47	62	75	80	80	66	61	41	34
21	38	31	38	58	69	85	81	82	69	53	53	27
22	38	22	35	61	76	90	75	77	78	61	54	27
23	42	18	36	67	72	88	79	90	64	72	56	22
24	35	13	42	73	63	86	84	90	67	72	47	14
25	27	20	45	67	67	80	89	89	58	71	40	14
26	39	30	47	56	78	84	86	92	66	54	36	10
27	35	28	50	69	78	83	90	89	55	44	31	15
28	35	31	59	74	69	74	82	73	58	58	32	18
29	20		68	69	67	77	80	75	54	37	27	22
30	35		68	73	68	69	83	88	63	40	30	27
31	47		52		67		82	75		43		36
Avg	30.9	30.0	40.8	55.4	72.5	77.3	82.6	82.4	67.8	60.8	45.0	33.7

2. Daily climate data for all elements by month

Main Menu Choice: 1 (Daily Climate Observauons(Temp,Precip)
Secondary Menu Choice : 5 (By Month)

Do you also want degree day data (y/n) [n] > y

Degree day choices:
1 = heating degree days (default: base 65)
2 = cooling degree days (default: base 65)
3 = growing degree days (default: base 50)
4 = corn growing degree days (base: 50, ceiling: 86)

Enter method [1] > 1

Enter degree day base [65] > 65
Enter Year (4-digits) [1994] > **1993**
Enter month (1-12) [3] > 1

STATION: ROCKFORD_WSO_AP (Station ID: 117382)

Year	Mo	Dy	Precip-itation (in)	Temperature High (F)	Temperature Low (F)	Temperature Mean (F)	Degree Days	Snow-Fall (in)	Snow Depth (in)
1993	01	01	0.00	18	3	11	54	0.0	0
1993	01	02	0.08	35	13	24	41	0.2	0
1993	01	03	0.27	42	34	38	27	0.0	0
1993	01	04	0.71	41	25	33	32	3.3	0
1993	01	05	0.00	26	21	24	41	0.0	3
1993	01	06	0.00	23	17	20	45	0.0	2
1993	01	07	0.13	26	16	21	44	1.9	2
1993	01	08	0.00	24	6	15	50	0.0	4
1993	01	09	0.01	26	19	23	42	0.4	4
1993	01	10	0.05	24	19	22	43	1.3	5
1993	01	11	0.00	28	20	24	41	0.0	5
1993	01	12	0.54	33	27	30	35	2.0	5
1993	01	13	0.15	33	17	25	40	2.2	7
1993	01	14	0.00	24	10	17	48	0.0	7
1993	01	15	0.00	21	12	17	48	0.0	6
1993	01	16	0.00	30	17	24	41	0.0	6
1993	01	17	0.00	28	-3	13	52	0.0	6
1993	01	18	0.00	25	-4	11	54	0.0	5
1993	01	19	0.00	24	-2	11	54	0.0	5
1993	01	20	0.25	35	10	23	42	0.0	5
1993	01	21	0.14	38	33	36	29	0.0	4
1993	01	22	0.08	38	25	32	33	1.2	4
1993	01	23	0.00	42	28	35	30	0.0	3
1993	01	24	0.00	35	17	26	39	0.0	2
1993	01	25	0.00	27	13	20	45	0.0	2
1993	01	26	0.00	39	18	29	36	0.0	2
1993	01	27	0.04	35	22	29	36	0.6	1
1993	01	28	0.00	35	15	25	40	0.0	2
1993	01	29	0.00	20	6	13	52	0.0	1
1993	01	30	0.00	35	13	24	41	0.0	1
1993	01	31	0.00	47	29	38	27	0.0	1
		Sum	2.45				1282	13.1	
		Average		30.9	16.0	23.5			

Degree Day: Heating Base: 65
m = missing, e = estimated

3. Daily climate data for user-selected rime period

Main Menu Choice: 1 (Daily Climate Observations(Temp,Precip)
Secondary Menu Choice : 6 (Between Two Selected Date)

Enter Beginning Year (4-digits) [1994] > **1993**
Enter Beginning Month (1-12) [3] > 6
Enter Beginning Day (1-31) [28] > 1

Enter Ending Year (4-digits) [1994] > **1993**
Enter Ending Month (1-12) [3] > 7
Enter Ending Day (1-31) [28] > **31**

1 - precipitation 2 - min temperature
3 - max temperature 4 - snow
5 - snow depth 6 - mean temperature
7 - degree days 8 - all of the above

Multiple choices should be separated by blanks
Enter Choice(s) > 1 2 3 6

STATION: ROCKFORD_WSO_AP (Station ID: 117382)

Year	Mo	Dy	Precip-itation (in)	Low (F)	High (F)	Mean (F)
1993	06	01	0.07	37	63	50
1993	06	02	0.16	50	56	53
1993	06	03	0.01	48	56	52
1993	06	04	0.96	45	57	51
1993	06	05	0.00	38	73	56
1993	06	06	0.00	45	74	60
1993	06	07	1.70	59	70	65
1993	06	08	1.71	63	83	73
1993	06	09	0.02	63	78	71
1993	06	10	0.00	56	81	69
1993	06	11	0.00	57	80	69
1993	06	12	0.00	59	82	71
1993	06	13	0.00	61	84	73
1993	06	14	1.14	58	80	69
1993	06	15	0.00	53	73	63
1993	06	16	0.00	52	77	65
1993	06	17	0.13	66	91	79
1993	06	18	2.04	67	85	76
1993	06	19	0.85	65	84	75
1993	06	20	0.10	62	75	69
1993	06	21	0.00	61	85	73
1993	06	22	0.00	60	90	75
1993	06	23	0.00	60	88	74
1993	06	24	0.27	71	86	79
1993	06	25	0.09	63	80	72
1993	06	26	0.80	57	84	71
1993	06	27	0.00	68	83	76
1993	06	28	0.41	59	74	67
1993	06	29	0.20	56	77	67
1993	06	30	1.19	59	69	64
1993	07	01	0.00	62	75	69
1993	07	02	1.00	64	87	76
1993	07	03	0.00	67	89	78
1993	07	04	0.00	73	85	79
1993	07	05	0.23	67	87	77
1993	07	06	0.00	64	81	73
1993	07	07	0.00	64	79	72
1993	07	08	0.65	66	83	75
1993	07	09	0.00	72	83	78
1993	07	10	0.00	66	87	77
1993	07	11	0.13	66	83	75
1993	07	12	0.00	60	78	69
1993	07	13	0.38	59	80	70
1993	07	14	0.00	64	79	72
1993	07	15	0.00	61	79	70
1993	07	16	0.00	61	82	72

1993	07	17	0.12	70	81	76
1993	07	18	0.95	71	87	79
1993	07	19	0.00	65	86	76
1993	07	20	0.00	62	80	71
1993	07	21	0.00	59	81	70
1993	07	22	0.00	55	75	65
1993	07	23	0.00	66	79	73
1993	07	24	0.04	69	84	77
1993	07	25	0.22	70	89	80
1993	07	26	0.00	67	86	77
1993	07	27	0.00	68	90	79
1993	07	28	0.00	67	82	75
1993	07	29	0.00	64	80	72
1993	07	30	0.00	60	83	72
1993	07	31	0.00	60	82	71
	Sum		15.57			
	Average			61.1	80.0	70.9

e - estimated m - missing

4. Daily climate data for user-selected month with previous year and 30-year average

Main Menu Choice: 1 (Daily Climate Observations(Temp,Precip)
Secondary Menu Choice : 7 (Selected Year, Last Year and 30-Year Average)

Enter the year (4-digits) [1994] > **1993**

Enter the month [03] > 8

1 = precipitation 2 = minimum temperature
3 = maximum temperature 4 = snowfall
5 = snow depth 6 = mean temperature

Enter the element > 1

Station: (132203) DES_MOINES_WSFO_ARPT
Year: 1993
Element: Precipitation (in)

Current year		Last year		1961-1990 average	
08/01/93	0.92	08/01/92	0.00	08/01/**	0.04
08/02/93	0.00	08/02/92	0.00	08/02/**	0.15
08/03/93	0.00	08/03/92	0.17	08/03/**	0.04
08/04/93	0.06	08/04/92	0.00	08/04/**	0.08
08/05/93	0.00	08/05/92	0.00	08/05/**	0.20
08/06/93	0.52	08/06/92	0.10	08/06/**	0.22
08/07/93	0.00	08/07/92	0.00	08/07/**	0.09
08/08/93	0.00	08/08/92	0.70	08/08/**	0.09
08/09/93	0.00	08/09/92	0.00	08/09/**	0.15
08/10/93	1.12	08/10/92	0.00	08/10/**	0.09
08/11/93	0.92	08/11/92	0.00	08/11/**	0.03
08/12/93	1.27	08/12/92	0.00	08/12/**	0.09
08/13/93	0.00	08/13/92	0.35	08/13/**	0.09
08/14/93	1.01	08/14/92	0.00	08/14/**	0.17
08/15/93	0.00	08/15/92	0.00	08/15/**	0.13
08/16/93	0.00	08/16/92	0.00	08/16/**	0.04
08/17/93	0.10	08/17/92	0.00	08/17/**	0.11
08/18/93	0.00	08/18/92	0.00	08/18/**	0.06
08/19/93	0.76	08/19/92	0.00	08/19/**	0.06
08/20/93	0.36	08/20/92	0.00	08/20/**	0.08
08/21/93	0.00	08/21/92	0.00	08/21/**	0.07
08/22/93	0.00	08/22/92	0.00	08/22/**	0.12
08/23/93	0.07	08/23/92	0.00	08/23/**	0.14
08/24/93	0.55	08/24/92	0.00	08/24/**	0.06
08/25/93	0.00	08/25/92	0.00	08/25/**	0.11
08/26/93	0.75	08/26/92	0.07	08/26/**	0.25
08/27/93	0.00	08/27/92	0.00	08/27/**	0.42
08/28/93	0.00	08/28/92	0.00	08/28/**	0.35
08/29/93	1.33	08/29/92	0.00	08/29/**	0.13
08/30/93	3.16	08/30/92	0.00	08/30/**	0.09
08/31/93	0.26	08/31/92	0.00	08/31/**	0.17

5. Multiple station temperature and precipitation summary for user-selected time period

Main Menu Choice: 1 (Daily Climate Observations(Temp,Precip)
Secondary Menu Choice : 8 (Multiple Station Summaries (Temp and Prec))

This product gives one-line temperature and precipitation summaries for a user-determined time period. Only stations which have reported on at least 10% of the days in the period are included.

Regions: il in ia ky mi mn mo oh wi cn q

Enter state [il] > mo

Missouri has 6 climate divisions
Please enter the divisions you are interested in [all] > 1

Time Periods:
1) Last 7 Days
2) Last 30 Days
3) This Month
4) Last Month
5) Select beginning and ending date

Enter Choice [1] > 5

Enter Beginning Year (4-digits) [1994] > **1993**
Enter Beginning Month (1-12) [3] > 7
Enter Beginning Day (1-31) [28] > 1

Enter Ending Year (4-digits) [1994] > **1993**
Enter Ending Month (1-12) [3] > 7
Enter Ending Day (1-31) [28] > **31**

State: Missouri Climate Division: 1
From 7/01/1993 To 7/31/1993

Station ID Number	Name	Prec	Dev	Percent Avail Data	Tmax	Tmin	Tmean	Dev	Percent Avail Data
230143	AMITY_7_WNW	19.14	15.06	100	83.3	66.6	75.2	-2.6	100
230608	BETHANY	22.67	18.59	100	83.3	66.5	75.0	-2.8	100
230980	BROOKFIELD	15.07	10.99	100	82.6	64.8	74.0	-3.9	100
231037	BRUNSWICK	8.71	4.63	100	81.5	66.7	74.3	-3.5	100
231141	BURLINGTON_JUNCTION	14.15	10.07	100	na	na	na	na	00
231340	CARROLLTON	10.00	5.92	100	86.6	70.1	78.6	0.8	100
231580	CHILLICOTHE_2_S	12.96	8.88	100	83.9	68.6	76.5	-1.3	100
231773	COLOMA	9.52	5.44	100	na	na	na	na	00
232474	EDGERTON	17.45	13.37	100	na	na	na	na	00
232729	FAIRFAX	23.85	19.77	100	na	na	na	na	00
233102	GALLATIN_4_W	17.69	13.61	100	82.6	67.0	75.0	-2.8	100
233329	GRAHAM_1_NW	23.13	19.05	100	na	na	na	na	00
233369	GRANT_CITY	19.20	15.12	100	83.1	67.4	75.6	-2.2	100
233568	HAMILTON_2_W	10.27	6.19	100	86.0	63.8	75.1	-2.7	100
233835	HIGBEE_4_S	10.10	6.02	100	na	na	na	na	00
233838	HIGGINSVILLE	11.60	7.52	100	84.9	69.0	77.1	-0.7	100
234358	KANSAS_CITY_WSMO_AP	10.90	6.82	100	85.9	69.3	77.8	0.0	100
234359	KANSAS_CITY_DOWNTOWN_AP	11.40	7.32	100	88.2	71.8	80.3	2.5	100
234505	KING_CITY	21.20	17.12	100	na	na	na	na	00
234850	LEES_SUMMIT_REED_WILDLI	13.20	9.12	100	79.7	60.6	70.4	-7.4	100
234904	LEXINGTON_3_NE	10.32	6.24	100	85.1	67.3	76.4	-1.4	100
235298	MARSHALL	6.28	2.20	100	85.9	69.3	77.9	0.1	100
235340	MARYVILLE_2_E	25.71	21.63	100	82.3	66.5	74.6	-3.2	100
235578	MILAN	20.11	16.03	100	na	na	na	na	00
236012	NEW_FRANKLIN_1_W	7.30	3.22	100	86.2	70.1	78.4	0.6	100
236269	ODESSA_1_S	13.26	9.18	100	na	na	na	na	00
236357	OREGON	21.42	17.34	100	84.7	66.1	75.7	-2.1	100
236775	POLO	10.47	6.39	100	na	na	na	na	00
236866	PRINCETON_6_SW	20.94	16.86	100	81.8	66.7	74.5	-3.3	100
237514	SALISBURY	12.31	8.23	100	85.2	69.0	77.4	-0.5	100
237862	SMITHVILLE_LAKE	13.65	9.57	100	84.2	68.3	76.5	-1.3	100
237963	SPICKARD_7_W	21.36	17.28	100	83.9	65.4	74.9	-2.9	100
238063	STET_1_S	9.17	5.09	100	na	na	na	na	00
238223	SWEET_SPRINGS	11.24	7.16	100	87.3	70.1	79.0	1.2	100
238289	TARKIO	19.15	15.07	100	82.2	66.4	74.5	-3.3	100
238524	UNITY_VILLAGE	10.96	6.88	100	na	na	na	na	00

Departures based on climate division averages for the period

6. Table of one week of daily temperature and precipitation reports for Illinnis

Main Menu Choice: 1 (Daily Climate Observations(Temp,Precip))
Secondary Menu Choice : 1 (Tabular)

Tabular Current Climate Data

Air Temperature and Precipitation

1) By Day (Data for one Station-Day per line)

2) By Week(Data for one Element-Station-Week per line)

Soil Temperature

3) By Day

q) exit menu

Enter Choice > 2

Area Choices: ia il in ky mi mn nd mo oh wi all

Enter Area(s) > il

Enter Number of Days of Data > 7
Enter ending date [94 03 28] > 94 03 28

NWS		3/22	3/23	3/24	3/25	3/26	3/27	3/28	AvT	
117382	Pcp	0.00	0.03	0.03	0.00	0.00	0.28	0.00	0.34	Rockford_WSO_AP
	Min	32	39	34	29	33	35	29	33	
	Max	68	73	73	49	49	42	52	58	
115372	Pcp	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.50	Marseilles_Lock
	Min	36	48	35	27	33	36	33	35	
	Max	55	73	78	52	46	43	52	57	
111549	Pcp	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05	Chicago_Ohare_WSO_AP
	Min	37	49	38	32	32	36	30	36	
	Max	71	74	74	42	42	52	52	58	
115751	Pcp	0.00	0.06	0.00	0.00	0.00	0.32	0.00	0.38	Moline_WSO_AP
	Min	40	43	33	30	39	35	32	36	
	Max	56	79	45	50	50	43	52	54	
111577	Pcp	0.00	0.00	0.00	0.00	na	0.38	0.00	0.38	Chicago_Midway
	Min	39	46	36	34	33	37	34	37	
	Max	57	71	77	66	42	47	53	59	
116711	Pcp	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.49	Peoria_WSO_AP
	Min	37	47	36	30	40	39	33	37	
	Max	77	80	80	51	51	43	50	62	
118179	Pcp	0.00	0.00	0.00	0.00	0.00	0.67	0.00	0.67	Springfield_WSO_AP
	Min	38	51	34	28	41	40	37	38	
	Max	74	74	59	51	51	46	53	58	
117354	Pcp	0.00	0.00	0.00	0.00	0.00	0.35	0.00	0.35	Rochelle
	Min	33	43	34	29	31	35	32	34	
	Max	53	69	34	45	45	42	51	48	
110803	Pcp	0.00	0.00	0.00	0.00	0.00	0.40	0.00	0.40	BOURONNAIS
114837	Pcp	0.00	0.00	0.01	0.00	0.00	0.25	0.00	0.26	Lake_Villa
	Min	38	48	34	27	30	32	28	34	
	Max	52	65	64	43	45	44	49	52	
119021	Pcp	0.01	0.00	0.00	0.00	0.00	0.54	0.00	0.55	Watseka
	Min	33	41	38	29	33	37	29	34	
	Max	56	71	78	50	49	46	49	57	
111265	Pcp	0.00	0.00	0.32	0.00	0.50	0.68	0.03	1.53	Carbondale
	Min	30	37	51	34	35	41	35	38	
	Max	60	68	76	60	54	50	50	60	
114442	Pcp	0.00	0.00	0.00	0.00	0.50	na	0.00	0.50	Jacksonville
	Min	35	36	36	26	26	na	33	32	
	Max	59	75	82	50	52	na	51	62	
114198	Pcp	0.00	0.00	0.33	0.00	0.00	0.49	0.00	0.82	Hoopeston
	Min	43	35	43	37	27	32	38	36	
	Max	58	70	76	72	48	44	45	59	
114603	Pcp	0.00	0.00	0.02	0.00	na	na	0.00	0.02	Kankakee
	Min	30	35	35	30	na	na	28	32	
	Max	55	73	77	48	na	na	51	61	
115712	Pcp	0.00	0.00	na	0.00	0.00	0.00	na	0.00	MINONK
	Min	36	42	na	26	33	35	na	34	
	Max	56	75	na	48	52	43	na	55	
116661	Pcp	0.00	0.00	0.02	0.00	0.00	0.45	0.00	0.47	Paw_Paw
	Min	33	34	34	30	29	32	33	32	
	Max	52	70	75	44	44	42	49	54	
114957	Pcp	0.00	na	0.16	0.00	0.01	0.75	0.00	0.92	Lawrenceville
	Min	32	na	51	33	33	39	35	37	
	Max	62	na	77	60	52	45	47	57	
114400	Pcp	na	na	na	na	0.25	na	0.00	0.25	Iuka
	Min	32	na	47	27	31	na	34	34	
	Max	60	na	78	58	53	na	46	59	
114317	Pcp	0.00	0.00	0.03	0.00	0.07	0.57	0.00	0.67	Hutsonville
	Min	36	39	45	28	28	36	28	34	
	Max	68	70	78	60	56	48	46	61	
118746	Pcp	0.00	0.00	na	0.00	na	0.00	na	0.00	Urbana_Ui
	Min	30	37	na	34	na	38	na	35	
	Max	58	77	na	62	na	46	na	61	
112931	Pcp	0.00	na	na	na	na	0.93	na	0.93	Fairfield

116753	Pcp	0.00	0.00	na	0.00	0.00	na	0.00	0.00	Peru
	Min	35	44	na	25	32	na	33	34	
	Max	56	75	na	47	50	na	52	56	
111020	Pcp	0.00	0.00	0.00	0.00	0.67	0.00	0.00	0.67	Brownstown
	Min	31	38	43	26	33	42	37	36	
	Max	57	70	77	54	54	44	48	58	
112745	Pcp	0.00	0.00	0.00	0.00	0.00	na	0.00	0.00	Elizabeth
	Min	27	36	30	21	30	na	28	29	
	Max	55	71	70	45	48	na	53	57	
115772	Pcp	0.00	0.00	0.01	0.00	0.00	0.16	0.00	0.17	Monmouth
	Min	35	41	31	26	33	36	30	33	
	Max	56	76	78	46	48	42	51	57	
111497	Pcp	0.00	0.00	0.00	0.00	na	na	0.00	0.00	Chi_Botanical
	Min	35	48	36	30	na	na	29	36	
	Max	53	69	70	45	na	na	49	57	
115493	Pcp	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.25	McHenry
	Min	34	42	34	28	30	32	25	32	
	Max	54	67	66	44	43	44	51	53	
112223	Pcp	0.01	0.00	0.00	0.00	0.00	0.37	0.00	0.38	De_Kalb
	Min	34	40	33	29	31	34	32	33	
	Max	55	68	74	44	46	42	52	54	
114559	Pcp	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.06	Joslin
113455	Pcp	0.00	0.00	0.01	0.00	0.00	0.38	0.00	0.39	Gladstone_Dam_18
114355	Pcp	0.00	0.00	0.15	0.00	0.00	0.17	0.00	0.32	Illinois_City_Dam_16
113290	Pcp	0.00	0.00	0.11	0.00	0.00	0.27	0.00	0.38	Fulton_L&d_#_13
117391	Pcp	0.00	0.00	0.06	0.00	0.00	0.19	0.00	0.25	Rock_Island_L&d_15
117077	Pcp	0.00	0.00	0.00	0.00	0.00	0.27	0.00	0.27	Quincy_Dam_21
116080	Pcp	0.00	0.00	0.09	0.00	0.00	0.22	0.00	0.31	New_Boston_Dam_17
117072	Pcp	0.00	0.00	0.00	0.00	0.00	0.59	0.00	0.59	Quincy_FAA_Airport
	Min	42	54	33	25	42	38	26	37	
	Max	58	75	81	50	49	44	51	58	
119354	Pcp	0.00	0.00	0.06	0.00	0.00	0.22	0.22	0.50	Windsor
	Min	37	43	40	29	29	40	40	37	
	Max	70	78	72	47	47	46	46	58	
116383	Pcp	0.00	0.00	0.48	0.00	0.00	1.34	0.00	1.82	Olive_Branch
	Min	34	41	32	37	37	42	40	38	
	Max	68	76	76	61	61	56	48	64	
110510	Pcp	0.00	0.00	0.00	0.00	0.00	0.48	0.57	1.05	Belleville
	Min	32	36	55	36	36	48	38	40	
	Max	75	80	78	53	53	52	48	63	
116910	Pcp	0.00	0.00	0.00	0.00	0.00	na	na	0.00	Pontiac
	Min	35	41	36	30	33	na	na	35	
	Max	56	74	79	47	50	na	na	61	
113109	Pcp	0.00	0.00	0.01	0.00	0.48	0.42	na	0.91	Flora
112483	Pcp	0.00	0.00	0.32	0.00	0.93	0.00	na	1.25	Du_Quoin_4_SE
	Min	35	43	48	33	40	42	na	40	
	Max	70	78	67	54	50	46	na	61	
113320	Pcp	0.00	0.00	0.00	0.00	0.52	na	na	0.52	Galesburg
	Min	40	43	31	29	39	na	na	36	
	Max	75	78	45	47	42	na	na	57	
116738	Pcp	na	na	na	na	0.62	na	na	0.62	Perry
	Min	43	na	32	24	29	na	na	32	
	Max	77	na	82	52	52	na	na	66	
115841	Pcp	na	0.00	0.21	0.00	0.01	0.52	0.00	0.74	Morrisonville
	Min	na	41	39	26	37	39	32	36	
	Max	na	69	76	51	48	45	50	56	
116526	Pcp	na	na	na	na	0.00	0.56	na	0.56	Ottawa_4_SW
	Min	na	45	na	na	34	36	na	38	
	Max	na	75	na	na	51	45	na	57	
118740	Pcp	na	0.00	0.00	0.00	0.01	0.59	0.00	0.60	Urbana
	Min	na	37	39	30	34	39	33	35	
	Max	na	71	78	50	50	45	47	57	

116745	Pcp	na	0.00	0.00	0.00	0.00	0.62	0.00	0.62	Perryville
	Min	na	43	32	24	32	36	29	33	
	Max	na	77	82	52	50	42	52	59	
116760	Pcp	na	na	0.03	na	na	na	na	0.03	Petersburg
116973	Pcp	na	na	0.24	na	0.05	1.04	na	1.33	Prairie_Du_Rocher
117916	Pcp	na	na	0.06	na	na	na	na	0.06	Shirland
112687	Pcp	na	na	0.02	na	0.02	0.90	na	0.94	Effingham
112145	Pcp	na	na	0.03	na	na	na	na	0.03	Danville_Sewage_Plant
111835	Pcp	na	na	0.04	na	na	0.45	na	0.49	COMPTON
113262	Pcp	na	na	0.07	na	na	na	na	0.07	Freeport_Waste_Wtr_Pl
113413	Pcp	na	na	0.07	na	na	0.58	na	0.65	Gibson_City_1_E
115342	Pcp	na	na	0.14	na	0.09	0.71	na	0.94	Marion
116779	Pcp	na	na	0.14	na	0.12	1.06	na	1.32	Pinckneyville_2_N
119148	Pcp	na	na	0.36	na	na	na	na	0.36	West_Frankfort_Lake
115901	Pcp	na	na	na	na	0.00	0.00	0.00	0.00	Mount_Carroll
	Min	na	na	29	na	30	30	26	29	
	Max	na	na	71	na	50	50	53	56	
115983	Pcp	na	na	0.34	na	0.03	na	na	0.37	Murphysboro
110050	Pcp	na	na	na	na	0.21	0.95	na	1.16	Albers
114739	Pcp	na	na	na	na	0.03	0.52	na	0.55	Kincaid
116159	Pcp	na	na	na	na	0.08	na	na	0.08	Newton
114756	Pcp	na	na	na	na	0.12	0.85	na	0.97	Kinmundy
117603	Pcp	na	na	na	na	0.09	0.64	na	0.73	Saint_Marie
115748	Pcp	na	na	na	na	0.00	0.32	na	0.32	Moline_Bridge
116011	Pcp	na	na	na	na	0.19	0.55	na	0.74	Nashville
116874	Pcp	na	na	na	na	na	0.78	na	0.78	Plumfield
114089	Pcp	na	na	na	na	na	0.86	na	0.86	Highland
115792	Pcp	na	na	na	na	na	0.56	na	0.56	Monticello_No_2
113902	Pcp	na	na	na	na	na	0.21	0.00	0.21	Harvard
112332	Pcp	na	na	na	na	na	0.63	na	0.63	Diona
118690	Pcp	na	na	na	na	na	0.47	na	0.47	Tuscola_No_2
119221	Pcp	na	na	na	na	na	0.36	na	0.36	Wheaton_3_SE
112736	Pcp	na	na	na	na	na	0.38	na	0.38	Elgin
114923	Pcp	na	na	na	na	na	0.44	na	0.44	La_Salle_1_S
113940	Pcp	na	na	na	na	na	0.45	na	0.45	Havana_4_NNE
112500	Pcp	na	na	na	na	na	0.48	na	0.48	DWIGHT
111836	Pcp	na	na	na	na	na	0.51	na	0.51	Congerville_2_NW
111436	Pcp	na	na	na	na	na	0.54	na	0.54	Charleston
114823	Pcp	na	na	na	na	na	0.54	na	0.54	La_Harpe
115334	Pcp	na	na	na	na	na	0.59	na	0.59	MARIETTA
115917	Pcp	na	na	na	na	na	0.66	na	0.66	Mt_Olive_1_E
118870	Pcp	na	na	na	na	na	0.73	na	0.73	VIRGINIA
112344	Pcp	na	na	na	na	na	0.81	na	0.81	Dix
116616	Pcp	na	na	na	na	na	0.41	na	0.41	Park_Forest
112348	Pcp	na	na	na	na	na	0.42	na	0.42	Dixon_1_NW
110868	Pcp	na	na	na	na	na	0.52	na	0.52	Bradford_1_W
110330	Pcp	na	na	na	na	na	0.54	na	0.54	Augusta
113683	Pcp	na	na	na	na	na	0.68	na	0.68	Greenup
118916	Pcp	na	na	na	na	na	1.02	na	1.02	Walnut
110055	Pcp	na	na	na	na	na	0.81	na	0.81	Albion
113666	Pcp	na	na	na	na	na	0.70	na	0.70	Greenfield
111316	Pcp	na	na	na	na	na	0.55	na	0.55	CARTHAGE
111743	Pcp	na	na	na	na	na	0.68	na	0.68	Clinton
111302	Pcp	na	na	na	na	na	0.87	na	0.87	Carmi_3
110608	Pcp	na	na	na	na	na	na	0.89	0.89	Benton
	Min	na	na	na	na	na	na	36	36	
	Max	na	na	na	na	na	na	45	45	

7. Monthly/annual climate data

Main Menu Choice: 2 (Statistically Derived Variables)
Secondary Menu Choice : 2 (Monthly/Annual Climate Data)

Monthly/Annual Data:

1 - Total Precipitation (in) 2 - Mean Maximum Temperature (F)
3 - Mean Minimum Temperature (F) 4 - Mean Daily Temperature (F)
5 - Snowfall (in) 6 - Extreme Maximum Temperature (F)
7 - Extreme Minimum Temperature (F) 8 - Extreme Daily Temperature (F)
9 - Extreme Daily Precipitation (in) 10 - Heating Degree Days (65 F)
11 - Cooling Degree Days (65 F) 12 - Growing Degree Days (50 F)
13 - Corn Grow Degree Days (50 F) 14 - No. of Days Measurable Precip
15 - No. of Days Precip >= 0.10 in 16 - No. of Days Precip >= 0.50 in
17 - No. of Days Precip >= 1.00 in 18 - No. of Days Max Temp >= 90 F
19 - No. of Days Min Temp <= 32 F 20 - No. of Days Min Temp <= 0 F
21 - No. of Days Snowfall > 0 in 22 - No. of Days Snow Depth >= 1 in
23 - Dates of fall and spring freezes
q - Quit

Choices Should be Separated by Blanks
Enter Choices(s) [1] > 1 1**8**

Do you want:
0 = the calendar year
1 = year starting in July (Jul-Jun)?
Note: choice #23 is only available for the calendar year

Enter your choice [0] > 0

Enter Beginning Year (4-digits) [1994] > **1985**
Enter Ending Year (4-digits) [1994] > **1993**

Station: (132203) DES_MOINES_WSFO_ARPT, IA
From Year 1985 To 1993
Total Precipitation (in)

Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
1985	0.64	1.98	3.37	0.23	1.56	3.72	2.04	2.83	5.42	3.75	1.65	1.30	28.49
1986	0.12	1.76	2.92	5.66	4.35	7.08	3.90	4.52	6.41	3.89	0.99	0.98	42.58
1987	0.42	1.38	2.99	2.92	3.75	2.10	5.08	10.04	1.40	1.03	3.27	2.59	36.97
1988	0.37	0.59	0.66	0.75	1.46	2.75	4.78	3.05	2.89	0.59	3.38	0.84	22.11
1989	1.30	1.05	0.37	1.95	3.62	2.22	3.65	6.53	5.41	2.28	0.19	0.57	29.14
1990	1.43	0.89	5.83	3.43	4.36	9.52	8.75	1.83	1.40	1.80	2.52	2.18	43.94
1991	0.95	0.17	3.90	7.54	7.88	2.87	1.14	3.65	0.90	4.96	3.61	2.20	39.77
1992	0.97	2.12	2.13	3.99	1.45	1.02	7.76	1.39	4.99	0.51	5.20	1.98	33.51
1993	1.59	1.52	3.22	2.96	7.51	7.68	9.75	12.24	5.79	1.70	1.06	0.86	55.88
Avg	0.86	1.27	2.82	3.27	3.99	4.32	5.20	5.12	3.84	2.27	2.43	1.50	36.93

'-9.99' = missing

Station: (132203) DES_MOINES_WSFO_ARPT, IA
From Year 1985 To 1993
No. of Days Max Temperature >= 90 F

Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
1985	0	0	0	1	1	2	11	5	7	0	0	0	27
1986	0	0	1	0	0	5	11	0	0	0	0	0	17
1987	0	0	0	1	0	10	14	5	0	0	0	0	30
1988	0	0	0	0	1	13	17	18	1	0	0	0	50
1989	0	0	0	0	0	1	10	3	0	0	0	0	14
1990	0	0	0	0	0	6	4	7	3	0	0	0	20
1991	0	0	0	0	1	6	10	7	2	0	0	0	26
1992	0	0	0	0	0	0	3	1	0	0	0	0	4
1993	0	0	0	0	0	0	2	3	0	0	0	0	5
Avg	0	0	0	0	0	4	9	5	1	0	0	0	21

'-99' = missing

8. Monthly/annual climate data for user-selected year with previous year and 30-year average

Main Menu Choice: 2 (Statistically Derived Variables)
Secondary Menu Choice : 3 (Monthly Data for Selected Year, Previous Year, and 30-Year Average)

Enter the year (4-digits) [1994] > **1993**

Do you want:
0 = the calendar year
1 = year starting in July (Jul-Jun)?

Enter your choice [0] > 0

Do you want:
1 = precipitation 2 = minimum temperature
3 = maximum temperature 4 = snowfall
5 = snow depth 6 = mean temperature

Enter the element [1] > 1

Station: (231791) COLUMBIA_WSO_AP
Element: Precipitation (in)

Jan	1993	2.37	1992	0.52	1961-90	1.50
Feb	1993	1.99	1992	1.96	1961-90	2.05
Mar	1993	2.14	1992	3.82	1961-90	3.49
Apr	1993	5.54	1992	1.83	1961-90	3.89
May	1993	4.81	1992	1.57	1961-90	5.11
Jun	1993	7.28	1992	1.64	1961-90	3.90
Jul	1993	10.16	1992	5.40	1961-90	3.59
Aug	1993	8.37	1992	1.61	1961-90	3.65
Sep	1993	12.06	1992	4.25	1961-90	3.50
Oct	1993	2.05	1992	1.03	1961-90	3.22
Nov	1993	4.20	1992	8.10	1961-90	3.24
Dec	1993	1.52	1992	2.64	1961-90	2.72
Tot	1993	62.49	1992	34.37	1961-90	39.86

9. Daily long-term average degree days for user-selected time period

Main Menu Choice: 2 (Statistically Derived Variables)
Secondary Menu Choice : 4 (Daily Average Degree Day Data for a Given Season and Averaging Period)

Time span:
1 -1961-1990
2-1951-1980
3 - 1948-to present
4 - Period of record
5 - User selected time interval

Please enter your choice [1] > 3

Degree Days:
1 - Heating Degree Days
2 - Cooling Degree Days
3 - Growing Degree Days
4 - Corn Growing Degree Days

Please enter the type of degree day [1] > 4

Please enter the degree day base [50F] > 50

Now define the season.
Enter Beginning Month (1-12) [3] > 5
Enter Beginning Day (1-31) [28] > 15
Enter Ending Month (1-12) [3] > 6
Enter Ending Day (1-31) [28] > 30

Station: (231791) COLUMBIA WSO AP
Base: 50 Average Corn Growing Degree Day-
Season: 48 days
Years: 1948 to 1994

	SUM	DAILY
May 15	13	13
May 16	27	14
May 17	42	15
May 18	58	16
May 19	74	16
May 20	91	17
May 21	109	18
May 22	126	17
May 23	142	16
May 24	158	16
May 25	174	16
May 26	190	16
May 27	206	16
May 28	224	18
May 29	243	19
May 30	261	18
May 31	279	18
Jun 1	297	18
Jun 2	315	18
Jun 3	333	18
Jun 4	351	18
Jun 5	371	20
Jun 6	391	20
Jun 7	413	22
Jun 8	434	21
Jun 9	455	21
Jun 10	475	20
Jun 11	495	20
Jun 12	517	22
Jun 13	540	23
Jun 14	564	24
Jun 15	587	23
Jun 16	609	22
Jun 17	632	23
Jun 18	655	23
Jun 19	678	23
Jun 20	701	23
Jun 21	724	23
Jun 22	747	23
Jun 23	770	23
Jun 24	794	24
Jun 25	818	24
Jun 26	843	25
Jun 27	867	24
Jun 28	891	24
Jun 29	916	25
Jun 30	940	24

10. Average temperature probabilities

Main Menu Choice: 2 (Statistically Derived Variables)
Secondary Menu Choice : 6 (Temperature Percentiles)

Temperature choices:
1 - Maximum Temperature
2 - Minimum Temperature
3 - Mean Temperature

Enter choice of temperature probabilities [1] > 1

Time span:
1 - 1961-1990
2 - 1951-1980
3 - 1948-to present
4 - Period of record
5 - User selected time span

Enter your choice [1] > 1

Probabilities: Maximum Temperature (F) Missing Data: 0.0%
Station: (111549) CHICAGO_0'HARE_WSO_ARPT Years: 1961 To 1990

	Low	5%	10%	25%	50%	75%	90%	95%	High
Ja	-9	6	11	20	31	37	44	49	65
Fe	0	15	19	26	34	41	48	53	71
Ma	15	27	31	37	44	53	63	69	88
Ap	31	40	43	49	58	68	75	80	91
Ma	39	52	56	62	70	78	85	88	93
Jn	56	65	68	74	80	86	90	92	104
Ju	64	71	75	79	84	89	92	95	102
Au	62	71	73	78	82	86	91	93	100
Se	47	60	63	69	75	81	86	89	99
Oc	35	47	50	56	63	71	77	81	91
No	13	32	35	40	48	56	63	68	78
De	-11	14	19	28	35	40	48	55	71
An	-11	22	30	40	61	78	85	89	104
Wi	-11	10	16	25	33	39	47	52	71
Sp	15	33	37	46	59	70	79	84	93
Su	56	68	72	77	82	87	91	93	104
Fa	13	37	42	51	63	74	81	85	99

11. Average precipitation probabilities

Main Menu Choice: 2 (Statistically Derived Variables)
Secondary Menu Choice : 8 (Precipitation Percentiles (Gamma Distribution))

Time span:
1 - 1961-1990
2 - 1951-1980
3 - 1948-to present
4 - Period of record
5 - User selected time span

Enter your choice [1] > 1

Probabilities: Precipitation (in) Missing Data: 0.2%
Station: (111549) CHICAGO_O'HARE_WSO_ARPT Years: 1961 To 1990

	1%	5%	10%	25%	50%	75%	90%	95%	99%
Ja	0.13	0.30	0.43	0.76	1.30	2.04	2.92	3.54	4.91
Fe	0.16	0.32	0.45	0.74	1.19	1.80	2.49	2.98	4.04
Ma	0.61	0.98	1.23	1.75	2.49	3.40	4.40	5.07	6.51
Ap	0.79	1.29	1.63	2.34	3.36	4.63	6.01	6.95	8.96
Ma	0.87	1.33	1.63	2.25	3.11	4.16	5.29	6.05	7.65
Jn	0.94	1.46	1.81	2.52	3.52	4.76	6.09	6.99	8.89
Ju	1.11	1.61	1.94	2.59	3.47	4.52	5.64	6.39	7.95
Au	0.23	0.61	0.97	1.86	3.44	5.73	8.50	10.49	14.95
Se	0.14	0.40	0.69	1.48	2.96	5.25	8.08	10.17	14.93
Oc	0.21	0.48	0.70	1.21	2.05	3.22	4.59	5.56	7.69
No	0.38	0.74	1.01	1.63	2.58	3.84	5.27	6.28	8.45
De	0.24	0.52	0.75	1.28	2.12	3.29	4.64	5.59	7.68
An	20.86	25.24	27.86	31.29	35.42	39.91	44.25	46.99	52.42
Wi	1.49	2.23	2.72	3.69	5.03	6.66	8.40	9.56	12.01
Sp	3.88	5.14	5.92	7.40	9.31	11.53	13.80	15.29	18.35
Su	5.03	6.51	7.42	9.12	11.31	13.82	16.36	18.02	21.42
Fa	2.57	3.83	4.67	6.33	8.61	11.38	14.33	16.31	20.46

12. Threshold search for special events

Main Menu Choice: 2 (Statistically Derived Variables)
Secondary Menu Choice : 9 (Threshold Search for Special Events)

This product searches for days for which the values of climate variables are above or below user-chosen thresholds. You may specify multiple criteria. Only those days which meet all criteria will be chosen.
symbol definitions: => equal to or greater than
<= less than or equal to
= equal to

1 - Precipitation => 10 - Mean Temperature =>
2 - Precipitation <= 11 - Mean Temperature <=
3 - Precipitation = 12 - Mean Temperature =
4 - Maximum Temperature => 13 - Snowfall =>
5 - Maximum Temperature <= 14 - Snowfall <=
6 - Maximum Temperature = 15 - Snowfall =
7 - Minimum Temperature => 16 - Snowdepth =>
8 - Minimum Temperature <= 17 - Snowdepth <=
9 - Minimum Temperature = 18 - Snowdepth =

Choices Should be Separated by Blanks. Enter the choice first and then the threshold for that choice. You may enter multiple choices. Enter hundreds of inches for Precip (2.00 inches=200), degrees for Temp(50 deg F=50),tenths for snowfall(5.0 inches=50), and inches for snowdepth(5 inches=5).

Enter Choices(s) > 1 **400**

Enter Beginning Year (4-digits) [1949] > **1949**
Enter Ending Year (4-digits) [1994] > **1994**
Enter Season (l=whole year,2=season) [2] > 1
Enter Output Option(l=dates,2=counts) [1] > 1

CHICAGO_O'HARE_WSO_ARPT
years 1949 to 1994 month 1 day 1 to month 12 day 31

Conditions are :
Precipitation greater than or equal to 4.00 inches

Year	Month	Day	Precip	Tmax	Tmin	Snowfall	Snowdepth
1969	**10**	**10**	**4.25**	**65**	**53**	**0.0**	**0**
1982	**12**	**2**	**4.47**	**71**	**58**	**0.0**	**0**
1987	**8**	**14**	**6.49**	**83**	**66**	**0.0**	**0**

13. Monthly, seasonal, annual temperature summary

Main Menu Choice: 3 (Climatic Summaries)
Secondary Menu Choice : 2 (Temperature Summary)

Time span:

1 - 1961-1990
2 - 1951-1980
3 - 1948-to present
4 - Period of record
5 - 1961-1990 Averages, Period of Record Extremes
6 - User selected time interval

Please enter your choice [1] > 1

Station: (217004) ROCHESTER_WSO_AP Missing Data: .0% NCDC Averages
Averages: 1961-1990 Extremes: 1961-1990

	Averages			Daily Extremes				Mean Extremes				#Day-Max		#Day-Min	
	Max	Min	Mean	High	Date	Low	Date	High	Yr	Low	Yr	=> 90	<= 32	<= 32	<= 0
Ja	20.2	2.6	11.5	55	24/1981	-32	19/1970	26.1	90	-1.8	77	0.0	24.2	30.8	14.1
Fe	26.0	8.1	17.1	63	17/1981	-29	5/1979	29.5	87	5.8	79	0.0	18.1	27.5	9.4
Ma	38.2	21.3	29.8	79	29/1986	-31	1/1962	39.5	73	18.4	65	0.0	9.6	26.1	2.1
Ap	55.2	34.6	44.9	91	21/1980	5	6/1982	53.2	77	38.2	61	0.1	0.6	12.9	0.0
Ma	68.1	45.5	56.8	92	22/1964	21	3/1967	64.8	77	51.5	67	0.3	0.0	2.0	0.0
Jn	77.7	55.2	66.5	101	8/1985	35	15/1989	71.6	71	59.8	69	1.7	0.0	0.0	0.0
Jl	81.8	60.1	70.9	102	10/1976	42	5/1967	74.7	74	67.1	67	3.5	0.0	0.0	0.0
Au	78.8	57.5	68.2	99	1/1988	37	14/1964	73.8	83	64.3	86	1.8	0.0	0.0	0.0
Se	69.8	48.5	59.2	95	7/1978	23	29/1967	64.0	78	54.9	74	0.4	0.0	0.8	0.0
Oc	58.2	37.6	47.9	88	6/1963	11	30/1988	58.3	63	42.2	76	0.0	0.1	10.1	0.0
No	40.9	24.4	32.6	73	3/1978	-20	26/1977	39.0	63	23.2	85	0.0	7.1	23.3	1.1
De	25.0	9.4	17.2	62	1/1962	-33	19/1983	28.8	65	2.9	83	0.0	22.7	30.3	9.0
An	53.3	33.7	43.6	102	7/10/76	-33	12/19/83	47.7	87	41.4	72	7.7	82.4	163.8	35.6
Wi	23.7	6.7	15.3	63	2/17/81	-33	12/19/83	23.7	87	5.6	79	0.0	65.2	88.5	32.3
Sp	53.8	33.8	43.8	92	5/22/64	-31	3/ 1/62	52.3	77	39.7	65	0.4	10.2	41.0	2.1
Su	79.4	57.6	68.5	102	7/10/76	35	6/15/89	72.5	88	65.9	67	7.0	0.0	0.0	0.0
Fa	56.3	36.8	46.6	95	9/ 7/78	-20	11/26/77	52.9	63	42.0	76	0.4	7.2	34.2	1.1

14. Monthly, seasonal, annual precipitation summary

Main Menu Choice: 3 (Climatic Summaries)
Secondary Menu Choice : 3 (Precipitation Summary)

Time span:

1 - 1961-1990
2 - 1951-1980
3 - 1948-to present
4 - Period of record
5 - 1961-1990 Averages, Period of Record Extremes
6 - User selected time interval

Please enter your choice [1] > 1

Station: (217004) ROCHESTER_WSO_AP Missing Data: 1%
Averages: 1961-1990 Extremes: 1961-1990

	Total Precipitation						Snow			#Days Precip		
	Mean	High--Yr		Low--Yr		1-Day Max	Mean	High--Yr		=>.10	=>.50	=>1.
Ja	0.78	2.53	67	0.08	61	1.42 24/1967	9.9	27.3	82	2.3	0.2	0.1
Fe	0.74	2.21	71	0.04	64	0.94 11/1984	7.7	19.1	62	1.9	0.3	0.0
Ma	1.78	3.58	90	0.44	78	1.23 1/1965	9.5	25.2	85	4.9	1.2	0.1
Ap	2.73	6.47	90	1.02	87	3.81 23/1990	4.0	16.4	83	6.7	1.5	0.4
Ma	3.40	8.41	82	1.17	63	2.08 27/1970	0.0	0.3	67	7.2	2.3	0.7
Jn	3.72	9.27	90	0.94	85	2.28 28/1990	0.0	0.0	0	6.6	2.7	0.9
Jl	4.20	12.33	78	1.02	75	7.47 11/1981	0.0	0.0	0	6.2	2.6	1.3
Au	3.88	9.52	79	1.17	70	2.69 25/1983	0.0	0.0	0	6.7	2.5	0.9
Se	3.47	10.50	86	0.38	75	5.98 12/1978	0.0	0.8	61	6.0	2.1	0.9
Oc	2.32	6.08	70	0.27	65	2.81 14/1966	0.6	5.4	79	4.6	1.6	0.5
No	1.61	4.61	75	0.06	67	2.05 9/1975	5.3	22.5	85	3.8	1.0	0.2
De	1.03	2.83	82	0.23	67	0.97 11/1965	10.9	30.6	69	2.9	0.3	0.0
An	29.66	43.94	90	15.48	76	7.47 7/11/81	48.1	89.0	85	59.9	18.5	5.9
Wi	2.55	4.92	83	0.81	64	1.42 1/24/67	28.0	48.1	70	7.1	0.9	0.1
Sp	7.91	14.57	90	4.14	72	3.81 4/23/90	13.6	29.1	62	18.8	5.1	1.2
Su	11.80	22.86	90	4.33	64	7.47 7/11/81	0.0	0.0	0	19.5	7.8	3.0
Fa	7.40	14.91	86	1.52	76	5.98 9/12/78	6.0	22.5	85	14.4	4.8	1.6

15. Heating/cooling degree day summary

Main Menu Choice: 3 (Climatic Summaries)
Secondary Menu Choice : 4 (Heating/Cooling Degree Day Summary)

Time span:

1 - 1961-1990
2 - 1951-1980
3 - 1948-to present
4 - Period of record
5 - User selected time interval

Please enter your choice [1] > 1

Station: (129430) WEST_LAFAYETTE_6_NW Missing Data: 0.0%

Degree Days to Selected Base Temperatures (F)

Base Below	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
						Heating Degree Days							
65	1323	1102	836	464	190	32	8	19	106	388	712	1133	6313
60	1168	961	684	333	102	8	1	4	47	261	565	979	5113
57	1075	876	596	262	64	3	0	1	25	196	482	886	4466
55	1013	820	538	218	45	1	0	0	15	157	427	825	4059
50	859	680	401	125	14	0	0	0	3	80	300	673	3135

Base Above	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
						Cooling Degree Days							
55	0	0	13	63	222	450	570	496	312	92	16	2	2236
57	0	0	9	46	180	391	509	434	262	69	10	1	1911
60	0	0	4	28	125	307	416	344	195	41	4	0	1464
65	0	0	1	9	58	181	269	204	103	13	0	0	838
70	0	0	0	2	19	82	140	93	42	2	0	0	380

Derived from the 1961-1990 Data

16. Growing degree day summary

Main Menu Choice: 3 (Climatic Summaries)
Secondary Menu Choice : 5 (Growing Degree Day Summary)

Time span:

1 - 1961-1990
2 - 1951-1980
3 - 1948-to present
4 - Period of record
5 - User selected time interval

Please enter your choice [1] > 1

Station: (129430) WEST_LAFAYETTE_6_NW Missing Data: 0.0%
Growing Degree Days to Selected Base Temperatures (F)

Base		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
40	M	10	17	111	318	644	899	1036	961	748	409	141	28	5322
	S	10	27	138	456	1100	1999	3035	3996	4744	5153	5294	5322	
45	M	3	6	61	206	491	749	881	806	598	277	78	12	4168
	S	3	9	70	276	767	1516	2397	3203	3801	4078	4156	4168	
50	M	1	1	31	121	347	599	726	651	451	170	39	5	3142
	S	1	2	33	154	501	1100	1826	2477	2928	3098	3137	3142	
55	M	0	0	13	63	223	450	571	496	312	92	16	2	2238
	S	0	0	13	76	299	749	1320	1816	2128	2220	2236	2238	
60	M	0	0	4	28	125	307	416	344	195	41	4	0	1464
	S	0	0	4	32	157	464	880	1224	1419	1460	1464	1464	

Corn Growing Degree Days

		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
50	M	5	10	68	186	392	592	703	644	481	247	79	16	3423
	S	5	15	83	269	661	1253	1956	2600	3081	3328	3407	3423	

Derived from the 1961-1990 Data
M = Monthly Data S = Running Sum of Monthly Data

17. Growing season summary

Main Menu Choice: 3 (Climatic Summaries)
Secondary Menu Choice : 6 (Growing Season Summary)

Time span:

1 - 1961-1990
2 - 1951-1980
3 - 1948-to present
4 - Period of record
5 - User selected time interval

Please enter your choice [1] > 1

Growing Season Summary
Station: (129430) WEST_LAFAYETTE_6_NW
Years: 1961 To 1990 Missing Data: 0.0%

Base	Date of Last Spring Occurrence					Date of First Fall Occurrence				
Temp	Median	Early	90%	10%	Late	Median	Early	10%	90%	Late
32	5/02	4/04	4/10	5/17	5/26	10/11	9/23	10/02	10/27	11/04
28	4/14	3/25	4/05	5/04	5/10	10/24	10/03	10/07	11/09	11/20
24	4/06	3/14	3/20	4/15	4/23	11/04	10/10	10/20	11/22	11/30
20	3/19	2/27	3/06	4/02	4/08	11/22	10/24	11/05	12/03	12/06
16	3/12	2/08	2/17	3/30	4/08	12/04	11/08	11/21	12/18	12/27

Base	Length of Season (Days)				
Temp	Median	Shortest	10%	90%	Longest
32	164	129	140	186	189
28	191	149	165	214	224
24	214	189	193	234	255
20	247	220	222	263	273
16	270	234	243	291	306

18. Daily climate calendar for user-selected month

Main Menu Choice: 3 (Climatic Summaries)
Secondary Menu Choice : 7 (Climate Calendar)

Time span:
1 - 1961-1990
2 - 1951-1980
3 - 1948-to present
4 - Period of record
5 - 1961-1990 Averages, Period of record Extremes
6 - User selected time interval

Please enter your choice [1] > 1

Enter month(s) separated by blanks or 13 for the entire year
Enter Month(s) [3] > 7

1 - Avg Max Temperature 2 - Avg Mean Temperature
3 - Avg Min Temperature 4 - High Max Temperature
5 - Low Max Temperature 6 - High Mean Temperature
7 - Low Mean Temperature 8 - High Min Temperature
9 - Low Min Temperature 10 - all of the above (1-9)
11 - all except avg data (1,3,4,5,8,9)

Enter Choice(s) [10] > 1 2

Daily Climate Calendar Averages: 1961-1990 Extremes: 1961-1990
Station: (331786) COLUMBUS_WSO_AIRPORT Percent Missing: 0.00

Month= July

Day	1	2	3	4	5	6	7
Avg Max	83	83	83	83	83	84	84
Avg Mean	73	72	72	72	72	73	73

Day	8	9	10	11	12	13	14
Avg Max	84	84	84	84	84	84	85
Avg Mean	74	74	74	74	74	74	74

Day	15	16	17	18	19	20	21
Avg Max	85	85	85	85	85	85	85
Avg Mean	74	75	75	75	75	75	75

Day	22	23	24	25	26	27	28
Avg Max	85	85	85	85	84	83	83
Avg Mean	75	75	75	74	74	73	73

Day	29	30	31
Avg Max	84	84	84
Avg Mean	73	73	73

19. Sunrise-sunset times

Main Menu Choice: 3 (Climatic Summaries)
Secondary Menu Choice : 10 (Sunrise-Sunset Times)

This product provides approximate sunrise and sunset times. Daylight Savings Time is assumed for the entire months of October and April. You may have to subtract or add an hour for the last few days of October or the first few days of April.

Enter Year (4-digits) [1994] > **1993**
Enter beginning month [1] > 1
Enter ending month [12] > 2

COLUMBUS_WSO_AIRPORT 40 0 N 82 52 W

year 1993

day	January sunrise EST	January sunset EST	January day length	February sunrise EST	February sunset EST	February day length
1	7:54 am	5:17 pm	9:23	7:40 am	5:51 pm	10:10
2	7:54 am	5:18 pm	9:24	7:39 am	5:52 pm	10:13
3	7:54 am	5:19 pm	9:25	7:38 am	5:53 pm	10:15
4	7:54 am	5:20 pm	9:25	7:37 am	5:55 pm	10:17
5	7:54 am	5:21 pm	9:26	7:36 am	5:56 pm	10:19
6	7:54 am	5:22 pm	9:27	7:35 am	5:57 pm	10:22
7	7:54 am	5:23 pm	9:28	7:34 am	5:58 pm	10:24
8	7:54 am	5:24 pm	9:30	7:33 am	5:59 pm	10:27
9	7:54 am	5:25 pm	9:31	7:32 am	6:01 pm	10:29
10	7:54 am	5:26 pm	9:32	7:31 am	6:02 pm	10:31
11	7:53 am	5:27 pm	9:33	7:29 am	6:03 pm	10:33
12	7:53 am	5:28 pm	9:34	7:28 am	6:04 pm	10:36
13	7:53 am	5:29 pm	9:36	7:27 am	6:05 pm	10:38
14	7:52 am	5:30 pm	9:38	7:26 am	6:07 pm	10:41
15	7:52 am	5:31 pm	9:40	7:24 am	6:08 pm	10:43
16	7:52 am	5:32 pm	9:41	7:23 am	6:09 pm	10:45
17	7:51 am	5:33 pm	9:42	7:22 am	6:10 pm	10:49
18	7:51 am	5:34 pm	9:44	7:21 am	6:11 pm	10:51
19	7:50 am	5:36 pm	9:45	7:19 am	6:12 pm	10:53
20	7:49 am	5:37 pm	9:47	7:18 am	6:13 pm	10:56
21	7:49 am	5:38 pm	9:49	7:16 am	6:15 pm	10:58
22	7:48 am	5:39 pm	9:51	7:15 am	6:16 pm	11:00
23	7:48 am	5:40 pm	9:53	7:14 am	6:17 pm	11:03
24	7:47 am	5:41 pm	9:55	7:12 am	6:18 pm	11:06
25	7:46 am	5:43 pm	9:56	7:11 am	6:19 pm	11:09
26	7:45 am	5:44 pm	9:58	7:09 am	6:20 pm	11:11
27	7:45 am	5:45 pm	10:00	7:08 am	6:21 pm	11:14
28	7:44 am	5:46 pm	10:03	7:06 am	6:23 pm	11:16
29	7:43 am	5:47 pm	10:05			
30	7:42 am	5:49 pm	10:06			
31	7:41 am	5:50 pm	10:08			

20. Weekly climate summary

Main Menu Choice: 3 (Climatic Summaries)
Secondary Menu Choice : 12 (Weekly Summaries)

1) precipitation
2) minimum temperature
3) maximum temperature
4) mean temperature
5) heating degree days (default: base 65)
6) cooling degree days (default: base 65)
7) growing degree days (default: base 50)
8) corn growing degree days (base: 50, ceiling: 86)
q) Quit

Enter Choice > 1

Enter Beginning Year (4-digits) [1951] > 1961
Enter Ending Year (4-digits) [1994] > 1990

Climate division (1) or individual station(2) [2] > 2

```
Weekly Summary : Precipitation (in)
Station : (331786) COLUMBUS_WSO_AIRPORT
Years : 1961 to 1990
```

Week	Data	Week	Data	Week	Data
3/ 1- 3/ 7	0.83	7/ 5- 7/11	0.95	11/ 1-11/ 7	0.81
3/ 8- 3/14	0.73	7/12- 7/18	0.88	11/ 8-11/14	0.71
3/15- 3/21	0.74	7/19- 7/25	1.25	11/15-11/21	0.68
3/22- 3/28	0.54	7/26- 8/ 1	0.77	11/22-11/28	0.88
3/29- 4/ 4	1.06	8/ 2- 8/ 8	0.93	11/29-12/ 5	0.65
4/ 5- 4/11	0.63	8/ 9- 8/15	0.72	12/ 6-12/12	0.71
4/12- 4/18	0.61	8/16- 8/22	0.87	12/13-12/19	0.52
4/19- 4/25	0.91	8/23- 8/29	0.81	12/20-12/26	0.59
4/26- 5/ 2	0.68	8/30- 9/ 5	0.95	12/27- 1/ 2	0.71
5/ 3- 5/ 9	0.77	9/ 6- 9/12	0.56	1/ 3- 1/ 9	0.45
5/10- 5/16	0.95	9/13- 9/19	0.72	1/10- 1/16	0.40
5/17- 5/23	0.81	9/20- 9/26	0.58	1/17- 1/23	0.55
5/24- 5/30	1.05	9/27-10/ 3	0.78	1/24- 1/30	0.58
5/31- 6/ 6	0.86	10/ 4-10/10	0.49	1/31- 2/ 6	0.70
6/ 7- 6/13	1.12	10/11-10/17	0.41	2/ 7- 2/13	0.49
6/14- 6/20	0.95	10/18-10/24	0.62	2/14- 2/20	0.49
6/21- 6/27	0.84	10/25-10/31	0.30	2/21- 2/29	0.68
6/28- 7/ 4	0.94				

21. 5-Day forecast for the state of Indiana

Main Menu Choice: 4 (Long Range Forecasts)
Secondary Menu Choice: 1 (5 Day)

Enter State ID (2-char, caps.) > IN

```
STATE FORECAST FOR INDIANA ...UPDATED
NATIONAL WEATHER SERVICE INDIANAPOLIS IN
1030 AM EST MON MAY 23 1994

. THIS AFTERNOON ... PARTLY SUNNY AND WARM. HIGHS IN THE 80S.
. TONIGHT ... PARTLY CLOUDY. A CHANCE OF THUNDERSHOWERS NORTH AFTER
MIDNIGHT. LOWS AROUND 60.
. TUESDAY ... PARTLY CLOUDY. A CHANCE OF THUNDERSTORMS NORTH AND CENTRAL.
HIGHS IN THE 80S.
. EXTENDED FORECAST ...
. WEDNESDAY ... A CHANCE OF MORNING SHOWERS NORTH ... AND A CHANCE OF
THUNDERSHOWERS CENTRAL AND SOUTH. LOWS IN THE UPPER 50S TO THE MIDDLE
60S.
HIGHS IN THE MIDDLE 70S TO MIDDLE 80S.
. THURSDAY ... PARTLY CLOUDY AND COOLER. LOWS 45 TO 55. HIGHS FROM THE
LOWER 60S TO LOWER 70S.
. FRIDAY ... MOSTLY CLEAR. LOWS IN THE MIDDLE 40S TO LOWER 50S. HIGHS IN
THE UPPER 60S TO MIDDLE 70S.
EP
```

22. Map of climate division soil moisture deficits for MCC region

Main Menu Choice: 5 (Soil Moisture Estimates)

Soil Moisture by Climate Division (using water-balance model)

THIS IS AN EXPERIMENTAL PRODUCT BASED ON A COMPUTER MODEL OF THE SOIL WATER BALANCE.

The model uses daily average climate data from all available stations in a climate division, assumes that com is the cover crop, and uses the soil characteristics of the dominant soil in that climate division. The results are most useful when compared with model estimates from previous years.

Choices:

1) Mapped Soil Moisture
2) Tabular Soil Moisture

h) Explanation
q) Return to Previous Menu

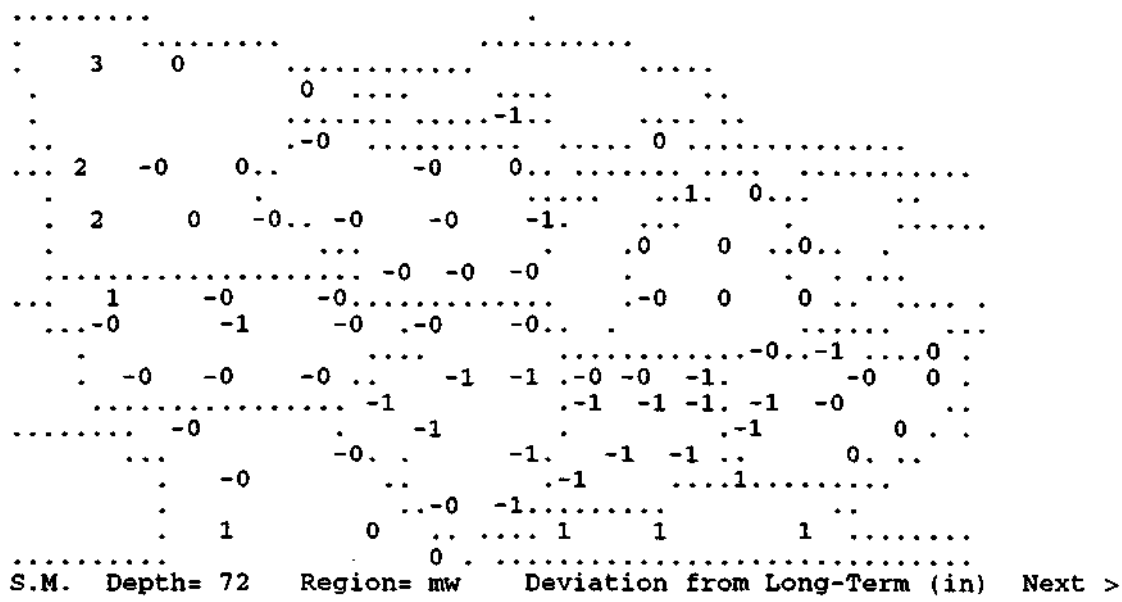
Enter Choice > 1

Soil Moisture Data by Climate Division

1) Current Year
2) Last Year
3) Deviation from long-term
4) Low for the period of record
5) High for the period of record
6) Current Year percent potential plant available water
7) Last Year percent potential plant available water
8) Deviation of percent potential plant available water
q) Quit

Enter Choice [3] > 3
Depths: 4 10 12 20 30 36 40 50 60 70 72 80 (inches)
Enter depth [72] > 72

Regions: mw MW ia il in ky mn mi UP mo nd oh wi
Enter region [mw] > mw


S.M. Depth= 72 Region= mw Deviation from Long-Term (in) Next >

23. Corn yield risk assessment for past years similar to long-range forecast

Main Menu Choice: 6 (Corn Yield Risk Assessment <- Now available)
Secondary Menu Choice: 5 (Model Yields Selected on the Basis of Latest NWS 90-Day Forecast)

Information is presented only for crop reporting districts where we have reasonable skill in simulating yields for past years

Regions: mw il in ia ky mi mn mo oh wi ne nd sd ks q
sum = regional summary

Enter Region(s) [sum] > il

Illinois
7/25/1994
Corn Yield Risk Assessment
(simulation years chosen based on National Weather Service long-range forecast)
(**** = no years in that weather category)

crop reporting district	90-day forecast: Temperature	90-day forecast: Precipitation	Simulated Outlook (bu/acre)	USDA 86-90 average (bu/acre)	Years with similar weather
1	normal	normal	128	112	1991,1990,1984
2	normal	normal	129	116	1991,1984,1978
3	normal	normal	126	112	1987,1984,1975
4	normal	normal	154	125	1990,1984,1975
5	normal	normal	149	115	1991,1984,1979
6	normal	normal	152	130	1984,1979,1975
7	normal	normal	140	116	1990,1985,1978
8	normal	normal	117	101	1990,1988,1985
9	normal	normal	118	101	1988,1979,1978
average			138	116	

24. Corn yield risk assessment advisory

Main Menu Choice: 6 (Corn Yield Risk Assessment <- Now available)
Secondary Menu Choice: 7 (Corn Yield Advisory)

Corn Yield Risk Assessment Advisory
July 25, 1994

The past week was wetter than last week over most of the Midwest with rainfall of 1 to 3 inches reported over most areas. Drier areas (<1") included southwestern Minnesota, Iowa, northern Missouri, southern and western Illinois, southern Indiana and southern and eastern Ohio.

It was a cool week in the western Corn Belt again, where temperatures were as much as 4 deg F below normal in Minnesota. The eastern Corn Belt experienced near normal temperatures. Soil moisture remains above normal in Iowa, Minnesota, Wisconsin, Michigan, northern Indiana, southeastern Missouri, and western Kentucky. Soil moisture is deficient in a belt extending from southwestern Missouri northeastward through central Illinois.

Since the weather was not too different from a typical summer week, the model yield values have improved a little from the last week's runs. The regional median value is 129 bu/acre, up two from last week. The range of 114-140 bu/acre is slightly lower than last week. The low value rose from 113 to 114 bu/acre. This appears to be the result of the passage of one week of growing weather without widespread crop-damaging conditions.

To provide an historical perspective, a comparison of model versus USDA estimated yields is given below for the past five years:

YEAR	MODEL YIELD	USDA ESTIMATE
1988	90	76
1989	116	113
1990	120	119
1991	109	105
1992	136	132
1993	121	99

The model is run for the following areas: Illinois, Indiana, Iowa, Kentucky, Michigan, Minnesota, Missouri, Ohio, Wisconsin, eastern Nebraska, eastern North Dakota, eastern South Dakota, eastern Kansas.

25. Soybean yield risk assessment categorized by 30-day weather type

Main Menu Choice: 7 (Soybean Yield Risk Assessment)
Secondary Menu Choice: 2 (Model Yields Categorized by 30-Day Weather Types)

Information is presented only for crop reporting districts where we have reasonable skill in simulating yields for past years.

Regions: mw il in ia ky mi mn mo oh ne q

Enter Region(s) [sum] > mw

Illinois
7/25/1994
Soybean Yield Risk Assessment
Yield (Bushels/acre)
(categorized by type of weather for the next 30 days in the simulation year)
(9999 = no years in that weather category)

crop report	<-------dry------->				<------normal------>				<--------wet-------->				USDA 88-92 average
distr	cool	norm	hot	all	cool	norm	hot	all	cool	norm	hot	all	(bu/ac)
1	46	45	46	46	45	46	48	46	44	47	46	46	41
2	42	42	43	42	43	44	44	44	44	45	44	44	39
3	43	43	40	42	44	43	43	43	43	44	44	44	39
4	45	45	42	44	46	45	46	45	45	46	46	46	41
5	43	40	39	40	44	43	44	43	42	44	43	43	37
6	40	39	35	38	40	41	40	40	41	42	42	42	39
7	32	32	29	30	34	34	34	34	34	35	35	35	34
8	32	31	23	29	31	30	29	30	30	31	31	31	30
9	33	32	22	29	32	31	30	31	31	32	32	32	30
					Indiana								
					7/25/1994								
1	40	41	38	40	42	42	41	42	42	43	43	43	37
2	40	40	38	39	42	43	41	42	42	43	43	43	38
3	40	41	41	41	41	41	41	41	41	43	43	42	36
4	39	37	36	37	41	40	41	40	40	40	41	40	36
5	44	43	41	43	45	45	45	45	46	45	46	45	40
6	42	39	40	40	41	43	39	42	44	43	44	44	36
7	38	36	29	35	38	37	38	38	38	38	38	38	35
8	35	30	33	33	36	36	37	36	35	36	36	36	34
9	37	35	34	35	37	36	38	37	36	37	37	37	35
					Iowa								
					7/25/1994								
1	41	42	41	41	42	44	44	43	41	43	45	43	41
2	41	44	42	42	40	43	43	42	42	43	44	43	39
3	41	46	42	42	33	43	44	41	40	43	45	43	39
4	41	42	41	41	44	43	43	43	41	44	43	43	39
5	41	41	39	40	42	44	44	43	38	45	45	43	40
6	43	41	43	43	42	44	46	44	42	44	45	44	41
7	42	39	35	37	40	41	44	41	41	42	42	41	37
8	40	40	34	38	40	40	39	40	39	41	41	40	34
9	41	41	39	40	42	42	42	42	41	43	43	43	38
					Kentucky								
					7/25/1994								
1	35	33	32	33	36	35	34	35	35	35	35	35	30
2	36	36	34	35	36	36	35	36	35	36	36	36	33
3	36	35	34	35	36	35	36	36	35	36	36	35	33
4	35	34	35	35	35	35	36	35	35	35	35	35	34
5	33	33	33	33	33	34	34	34	32	33	34	33	33
6	28	37	34	34	36	34	32	35	32	33	34	33	32

Michigan
7/25/1994

5	37	36	37	36	36	38	39	38	37	37	39	38	33
6	37	36	37	36	34	36	37	36	35	37	38	36	35
8	36	34	41	36	34	36	39	37	36	38	41	39	35
9	35	34	36	34	36	35	35	35	36	36	38	37	33

Minnesota
7/25/1994

4	29	31	31	31	30	31	32	31	29	32	34	31	34
5	34	34	35	34	35	35	36	35	35	36	36	36	27
7	35	37	37	36	35	37	38	37	36	38	38	37	37
8	39	39	40	40	36	39	40	38	38	39	40	39	37
9	31	35	35	33	29	34	37	34	33	35	35	35	34

Missouri
7/25/1994

1	34	36	29	32	37	37	35	37	37	39	38	38	30
2	31	30	28	30	33	33	32	33	33	33	33	33	30
3	33	30	27	29	32	33	31	33	33	34	35	34	30
4	32	30	25	28	30	31	27	30	32	32	28	31	30
5	9999	34	32	33	36	34	33	34	36	36	33	35	33
6	33	34	29	32	34	36	34	35	36	36	36	36	32
7	28	29	20	24	29	30	28	29	30	29	26	29	26
9	32	34	29	32	33	34	33	33	34	33	33	33	31

Ohio
7/25/1994

1	37	36	37	37	37	37	37	37	39	39	40	39	34
2	39	38	40	39	39	40	41	40	40	41	39	40	33
4	41	39	39	40	40	42	40	40	42	42	43	42	36
5	41	40	39	40	39	42	42	41	41	42	42	42	35
7	43	40	40	41	42	42	43	42	42	42	44	42	38
8	41	41	40	41	41	40	42	41	40	41	42	41	37

Wisconsin
7/25/1994

4	19	24	30	24	22	24	31	26	24	29	28	27	31
8	34	41	44	42	37	41	41	39	40	42	42	42	39
9	37	42	40	39	39	38	42	40	40	41	42	41	36

North Dak
7/25/1994

3	31	34	31	32	35	35	34	35	33	36	36	35	31
6	34	39	33	36	40	41	39	40	40	41	42	41	34
9	34	38	32	34	41	40	37	39	40	41	40	40	30

26. Palmer drought index state map

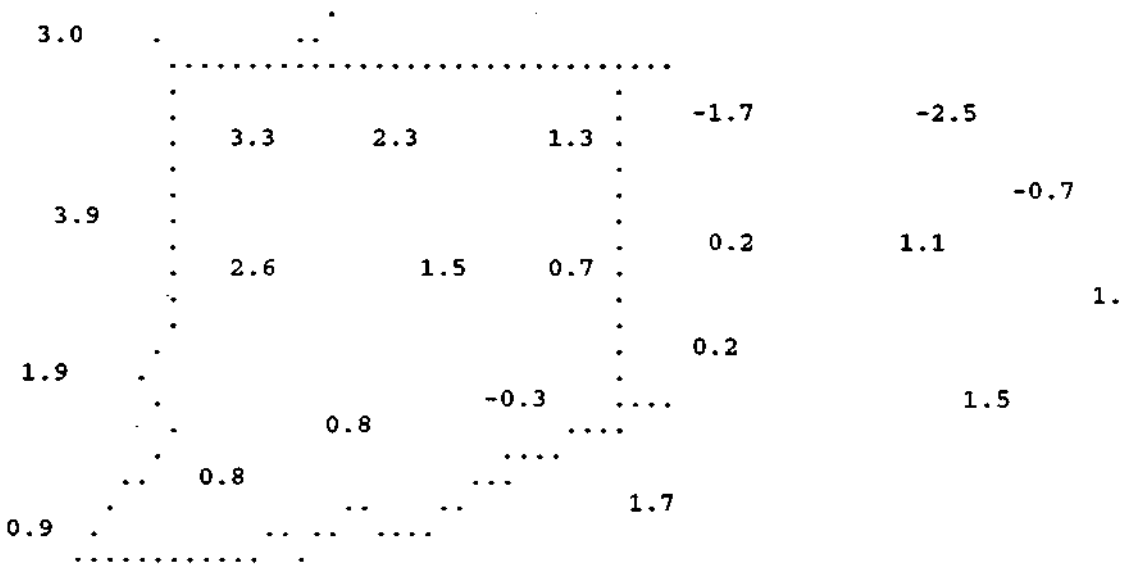
Main Menu Choice: 8 (Drought Indices)
Secondary Menu Choice : 3 (Weekly Palmer Drought Index - map (updated Tuesday p.m.)

1) Crop Moisture Index
2) Weekly Change in Crop Moisture Index
3) Moisture Anomaly (Z) Index
4) Palmer Drought Index
q)Quit

Enter Choice [4] > 4

Regions: mw MW ia il in ky mn mi UP mo nd oh wi

Enter region [MW] > in



27. Palmer drought index for user-selected region and years

Main Menu Choice: 8 (Drought Indices)
Secondary Menu Choice : 4 (Historical Palmer Indices Over Time (tabular))

Historical Data by Climate Division (1895 to present)

1 = Palmer Hydrological Drought Index
2 = Palmer Drought Severity Index
3 = Precipitation
4 = Temperature
5 = Departure from Normal Precipitation (1961-1990)
6 = Departure from Normal Temperature (1961-1990)
q = Quit

Enter Choice [1] > 1

Enter Beginning Year (4-digits) [1994] > **1984**
Enter Ending Year (4-digits) [1994] > **1993**

State: il in ia ky mi mn mo oh wi ks nd ne sd q
enter state or q to quit > ia

Iowa has 9 climate divisions
Enter the climate division(s) of interest > 8 9

Palmer Hydrological Drought Index

	CD	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
IA	8	1984	1.36	1.13	1.08	2.15	2.49	2.36	2.57	1.38	-1.63	-0.74	-0.67	1.11
IA	8	1985	0.86	1.06	0.99	-1.19	-1.73	-1.64	-0.99	-0.72	1.29	2.00	2.21	2.19
IA	8	1986	1.45	1.43	1.15	1.31	1.97	1.10	1.65	1.92	3.34	3.55	2.95	2.60
IA	8	1987	2.00	1.59	1.87	1.11	1.15	-1.04	0.45	2.38	1.79	1.33	2.11	2.41
IA	8	1988	2.43	2.03	1.17	-1.71	-2.54	-3.80	-4.47	-4.51	-4.67	-5.10	-4.95	-5.20
IA	8	1989	-5.24	-5.23	-5.79	-6.54	-5.96	-6.05	-5.55	-4.76	-3.65	-3.10	-3.29	-3.21
IA	8	1990	-2.54	-2.09	-0.91	-0.75	2.13	2.74	3.84	3.26	2.26	2.21	2.20	2.26
IA	8	1991	2.08	1.52	2.27	3.71	3.33	2.43	1.87	1.11	-1.95	-1.45	1.19	1.36
IA	8	1992	1.51	1.91	1.67	2.36	1.21	-1.87	1.82	1.34	3.57	2.78	4.05	4.27
IA	8	1993	4.15	3.91	3.97	3.74	4.00	4.16	7.82	7.51	7.68	6.87	6.23	5.37

Palmer Hydrological Drought Index

	CD	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
IA	9	1984	1.40	1.23	1.22	1.49	2.12	1.95	2.75	1.78	1.37	2.76	2.97	3.18
IA	9	1985	2.83	3.00	3.40	1.92	1.36	0.80	0.91	0.62	-1.35	1.17	2.73	2.65
IA	9	1986	1.82	2.03	1.37	0.71	2.03	1.34	1.90	2.18	3.62	4.15	3.45	3.02
IA	9	1987	2.38	1.74	1.82	1.06	-1.98	-2.66	-3.36	-2.53	-2.72	-3.11	-2.44	-1.41
IA	9	1988	-1.27	-1.25	-1.53	-2.09	-2.90	-3.97	-4.85	-4.65	-5.05	-5.30	-5.01	-5.24
IA	9	1989	-5.44	-5.48	-5.98	-5.87	-5.49	-5.15	-4.92	-4.13	-3.43	-3.40	-3.82	-4.02
IA	9	1990	-3.86	-3.09	-1.59	-1.76	-0.56	3.17	3.86	3.38	2.23	1.63	1.65	1.87
IA	9	1991	1.76	1.28	2.05	1.66	1.39	-1.25	-2.13	-2.32	-2.80	-2.11	-0.77	1.75
IA	9	1992	1.46	1.74	1.37	1.60	-0.90	-2.03	2.06	1.68	2.56	1.98	3.88	4.27
IA	9	1993	4.20	3.96	4.28	4.28	4.32	5.47	7.73	8.47	8.38	7.21	6.49	5.60

28. Palmer drought index projections

Main Menu Choice: 8 (Drought Indices)
Secondary Menu Choice : 7 (Probability Projections of the Palmer Drought Index)

Probability Projections of the Palmer Drought Index (CPC-NWS)

Choices:

il in ia ky mi mn mo nd oh wi mw

q -Quit

Multiple Choices Should Be Separated By A Blank
Enter Choice(s) > oh

PROBABILITY PROJECTIONS OF THE JUN 1994 PALMER DROUGHT INDEX
TO THE END OF SEP 1994
FOR SEVEN DROUGHT CATEGORIES (DRY AND WET)
FOR THE CLIMATE DIVISIONS IN THE CENTRAL REGION
BASED ON PAST 63 YEARS OF HISTORICAL DATA
CLIMATE ANALYSIS CENTER-NMC-NWS-NOAA
HYDROLOGIC SERVICES DIVISION-OH-NWS-NOAA

ST	CD	JUN PDI	EXTREME OR SEVERE DROUGHT (PRCT)	MODERATE DROUGHT (PRCT)	MILD DROUGHT (PRCT)	NEAR NORMAL OR INCIPIENT CONDTIONS (PRCT)	MOIST SPELL (PRCT)	UNUSUAL MOIST SPELL (PRCT)	VERY OR EXTREME MOIST SPELL (PRCT)
OH	1	-1.94	10	24	25	17	14	8	2
OH	2	-2.21	8	35	16	21	6	10	5
OH	3	-1.74	3	24	19	27	11	11	5
OH	4	-1.30	6	19	11	24	29	5	6
OH	5	0.16	0	0	17	36	22	14	10
OH	6	-1.37	2	24	19	30	10	8	8
OH	7	-1.95	13	19	25	24	10	6	3
OH	8	-1.37	6	24	16	38	10	5	2
OH	9	-1.29	3	29	21	19	19	8	2
OH	10	-1.21	3	17	19	38	10	6	6

29. Climate division average precipitation for user-selected years

Main Menu Choice: 9 (Regional Data (Maps and Tables))
Secondary Menu Choice : 1 (Historical Monthly Data Over Time (tabular))

Historical Data by Climate Division (1895 to present)

1 = Palmer Hydrological Drought Index
2 = Palmer Drought Severity Index
3 = Precipitation
4 = Temperature
5 = Departure from Normal Precipitation (1961-1990)
6 = Departure from Normal Temperature (1961-1990)
q = Quit

Enter Choice [1] > 3

Enter Beginning Year (4-digits) [1994] > **1980**
Enter Ending Year (4-digits) [1994] > **1993**

State: il in ia ky mi mn mo oh wi ks nd ne sd q
enter state or q to quit > il

Illinois has 9 climate divisions
Enter the climate division(s) of interest > 5

Precipitation

	CD	Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann
IL	5	1980	0.63	1.62	4.02	2.04	2.54	6.75	1.68	4.41	4.12	1.65	1.27	1.82	32.55
IL	5	1981	0.34	2.05	0.63	6.73	5.87	5.07	6.61	6.48	3.54	2.40	1.47	1.89	43.08
IL	5	1982	3.65	1.41	4.06	3.25	4.77	3.67	4.77	3.05	1.55	2.28	5.11	5.01	42.58
IL	5	1983	0.59	1.23	2.92	5.65	5.15	4.41	1.62	4.82	1.78	4.81	4.07	4.25	41.30
IL	5	1984	0.81	2.10	3.89	3.36	6.40	2.07	3.73	1.74	2.39	2.98	3.57	2.99	36.03
IL	5	1985	1.54	3.94	5.13	1.98	2.54	3.35	4.90	5.22	1.25	3.13	8.80	2.16	43.94
IL	5	1986	0.07	2.35	1.01	1.79	4.28	4.70	4.33	1.51	5.79	4.24	2.39	1.59	34.05
IL	5	1987	1.74	0.19	1.35	3.22	3.47	3.98	4.97	4.58	1.85	1.32	3.66	4.67	35.00
IL	5	1988	1.66	1.15	2.91	1.98	1.42	0.38	1.66	2.05	2.69	3.40	4.87	2.89	27.06
IL	5	1989	1.15	1.19	1.63	4.00	4.62	2.18	3.72	2.89	5.51	1.07	1.71	0.89	30.56
IL	5	1990	1.34	5.26	3.56	2.16	6.09	6.24	4.90	3.30	1.31	5.80	4.25	5.85	50.06
IL	5	1991	1.58	0.40	4.14	3.41	5.97	0.77	1.16	2.98	1.82	6.95	3.00	1.80	33.98
IL	5	1992	0.98	1.40	2.17	2.44	1.10	2.42	9.83	1.86	4.09	1.43	7.34	2.43	37.49
IL	5	1993	3.82	1.78	3.09	5.11	3.43	7.90	6.52	5.45	7.72	4.22	3.65	1.53	54.22

30. Climate division average precipitation for all climate divisions in the region and a user-selected month

Main Menu Choice: 9 (Regional Data (Maps and Tables))
Secondary Menu Choice : 2 (Historical Monthly Data Over Space (tabular))

Historical Data by Climate Division (1895 to present)

1 = Palmer Hydrological Drought Index
2 = Palmer Drought Severity Index
3 = Precipitation
4 = Temperature
q = Quit

Enter Choice [1] > 3

Enter Year (4-digits) [1994] > 1993

Enter the month (1-12) [1] > 7

Regions: mw il in ia ky mi mn mo oh wi ks ne sd nd q

Enter Region(s) [mw] > mw

	CD		Year	Mo	PRCP	Avg	%	Depart
IL	1	NW	1993	7	4.95	3.98	124	0.97
IL	2	NE	1993	7	4.14	3.98	104	0.16
IL	3	W	1993	7	9.93	4.36	228	5.57
IL	4	C	1993	7	8.57	3.94	218	4.63
IL	5	E	1993	7	6.52	4.20	155	2.32
IL	6	WSW	1993	7	6.93	3.91	177	3.02
IL	7	ESE	1993	7	6.72	4.22	159	2.50
IL	8	SW	1993	7	4.74	3.85	123	0.89
IL	9	SE	1993	7	5.29	4.05	131	1.24

	CD		Year	Mo	PRCP	Avg	%	Depart
IN	1	NW	1993	7	4.22	3.89	108	0.33
IN	2	NC	1993	7	3.04	3.86	79	-0.82
IN	3	NE	1993	7	4.58	3.63	126	0.95
IN	4	WC	1993	7	5.35	4.46	120	0.89
IN	5	C	1993	7	5.30	4.47	119	0.83
IN	6	EC	1993	7	5.76	4.03	143	1.73
IN	7	SW	1993	7	4.48	4.55	98	-0.07
IN	8	SC	1993	7	3.79	4.68	81	-0.89
IN	9	SE	1993	7	3.15	4.46	71	-1.31

	CD		Year	Mo	PRCP	Avg	%	Depart
IA	1	NW	1993	7	6.93	3.69	188	3.24
IA	2	NC	1993	7	7.86	4.35	181	3.51
IA	3	NE	1993	7	9.00	4.19	215	4.81
IA	4	WC	1993	7	9.13	3.69	247	5.44
IA	5	C	1993	7	11.37	4.15	274	7.22
IA	6	EC	1993	7	10.94	4.17	262	6.77
IA	7	SW	1993	7	14.02	4.37	321	9.65
IA	8	SC	1993	7	16.08	4.39	366	11.69
IA	9	SE	1993	7	12.13	4.51	269	7.62

	CD		Year	Mo	PRCP	Avg	%	Depart
KY	1	W	1993	7	2.59	4.26	61	-1.67
KY	2	C	1993	7	2.62	4.93	53	-2.31
KY	3	BG	1993	7	3.08	4.78	64	-1.70
KY	4	E	1993	7	3.86	5.00	77	-1.14

	CD		Year	Mo	PRCP	Avg	%	Depart
MI	1	WU	1993	7	2.18	3.12	70	-0.94
MI	2	EU	1993	7	3.81	2.80	136	1.01
MI	3	NW	1993	7	2.95	2.65	111	0.30
MI	4	NE	1993	7	1.89	2.92	65	-1.03
MI	5	WC	1993	7	3.03	2.39	127	0.64
MI	6	C	1993	7	1.96	2.50	78	-0.54
MI	7	EC	1993	7	2.45	2.53	97	-0.08
MI	8	SW	1993	7	2.83	3.32	85	-0.49
MI	9	SC	1993	7	2.76	3.14	88	-0.38
MI	10	SE	1993	7	2.54	2.98	85	-0.44

	CD		Year	Mo	PRCP	Avg	%	Depart
MN	1	NW	1993	7	7.14	3.16	226	3.98
MN	2	NC	1993	7	6.14	3.74	164	2.40
MN	3	NE	1993	7	7.29	3.69	198	3.60
MN	4	WC	1993	7	6.47	3.31	195	3.16
MN	5	C	1993	7	5.19	3.66	142	1.53
MN	6	EC	1993	7	4.95	3.88	128	1.07
MN	7	SW	1993	7	7.35	3.73	197	3.62
MN	8	SC	1993	7	6.89	4.08	169	2.81
MN	9	SE	1993	7	5.84	4.17	140	1.67

	CD		Year	Mo	PRCP	Avg	%	Depart
MO	1	NW	1993	7	14.93	4.09	365	10.84
MO	2	NE	1993	7	8.46	4.64	182	3.82
MO	3	WC	1993	7	11.75	3.55	331	8.20
MO	4	W	1993	7	4.71	3.20	147	1.51
MO	5	E	1993	7	4.41	3.58	123	0.83
MO	6	BH	1993	7	0.95	3.76	25	-2.81

	CD		Year	Mo	PRCP	Avg	%	Depart
ND	1	NW	1993	7	7.45	2.34	318	5.11
ND	2	NC	1993	7	7.46	2.69	277	4.77
ND	3	NE	1993	7	7.89	2.85	277	5.04
ND	4	WC	1993	7	8.20	2.37	346	5.83
ND	5	C	1993	7	9.16	2.62	350	6.54
ND	6	EC	1993	7	8.52	2.83	301	5.69
ND	7	SW	1993	7	5.65	2.08	272	3.57
ND	8	SC	1993	7	10.77	2.21	487	8.56
ND	9	SE	1993	7	6.63	2.76	240	3.87

	CD		Year	Mo	PRCP	Avg	%	Depart
OH	1	NW	1993	7	2.93	3.69	79	-0.76
OH	2	NC	1993	7	2.20	3.75	59	-1.55
OH	3	NE	1993	7	2.57	3.85	67	-1.28
OH	4	WC	1993	7	7.05	3.96	178	3.09
OH	5	C	1993	7	6.29	4.07	155	2.22
OH	6	CH	1993	7	3.62	4.21	86	-0.59
OH	7	NEH	1993	7	4.38	4.24	103	0.14
OH	8	SW	1993	7	2.97	4.14	72	-1.17
OH	9	SC	1993	7	3.93	4.33	91	-0.40
OH	10	SE	1993	7	3.99	4.44	90	-0.45

	CD		Year	Mo	PRCP	Avg	%	Depart
WI	1	NW	1993	7	3.60	3.91	92	-0.31
WI	2	NC	1993	7	3.12	3.78	83	-0.66
WI	3	NE	1993	7	3.85	3.37	114	0.48
WI	4	WC	1993	7	4.94	4.16	119	0.78
WI	5	C	1993	7	6.84	3.73	183	3.11
WI	6	EC	1993	7	5.52	3.13	176	2.39
WI	7	SW	1993	7	8.29	3.86	215	4.43
WI	8	SC	1993	7	6.91	3.72	186	3.19
WI	9	SE	1993	7	4.21	3.71	113	0.50

31. Regional map of climate division precipitation for user-selected month

Main Menu Choice: 9 (Regional Data (Maps and Tables))
Secondary Menu Choice : 3 (Historical Monthly Data Over Space (mapped))

Historical Data by Climate Division (1895 to present)

1) Palmer Hydrological Drought Index
2) Palmer Drought Severity Index
3) Precipitation
4) Average Precipitation (1961-90)
5) Precipitation (Percent of Average)
6) Precipitation Departure
7) Temperature
8) Average Temperature (1961-90)
9) Temperature (Percent of Average)
10) Temperature Departure
q)Quit

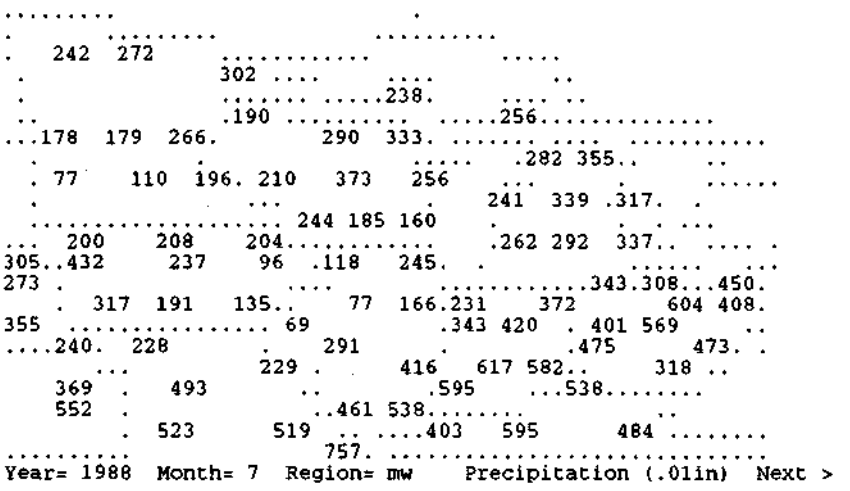
Enter Choice [1] >3

Enter Year (4-digits) [1994] > **1988**

Enter the month (1-12) [1] > 7

Regions: mw MW ia il in ky mn mi UP mo oh wi nd

Enter region [mw] > mw



32. Climate division precipitation and temperature for user-selected rime period and state

Main Menu Choice: 9 (Regional Data (Maps and Tables))
Secondary Menu Choice : 4 (Regional Data between Two Dates (tabular))

States: il in ia ky mi mn mo oh wi q

Enter state > mi

Enter beginning year (4-digits) > 1988
Enter beginning month (1-12) > 4
Enter beginning day (1-31) > 1

Enter ending year (4-digits) > 1988
Enter ending month (1-12) > 8
Enter ending day (1-31) > 15

Do you want:
1) temperature & precipitation
2) Degree Day data

Enter choice > 1

Michigan
4/ 1/1988 to 8/15/1988

	Temperature			Precipitation			
cd	temp	norm	dev	prcp	norm	dev	percent
1	59.1	55.7	3.4	10.49	13.88	-3.39	76
2	57.7	55.0	2.7	10.38	12.48	-2.10	83
3	60.9	57.9	3.0	9.50	12.65	-3.15	75
4	60.7	57.5	3.2	9.61	12.47	-2.87	77
5	62.8	59.7	3.1	8.27	13.01	-4.74	64
6	63.6	60.4	3.2	9.14	12.99	-3.85	70
7	63.4	60.7	2.7	9.32	12.43	-3.11	75
8	64.7	61.8	2.8	9.41	14.74	-5.33	64
9	64.9	62.0	3.0	10.00	14.39	-4.39	69
10	65.7	62.6	3.2	9.03	13.71	-4.68	66
State	62.0	59.0	3.0	9.67	13.33	-3.66	73

33. State map of climate division precipitation percent of normal for user-selected month

Main Menu Choice: 9 (Regional Data (Maps and Tables))
Secondary Menu Choice : 5 (Regional Data between Two Dates (mapped))

Regions: il in ia ky mi mn mo oh wi mw q

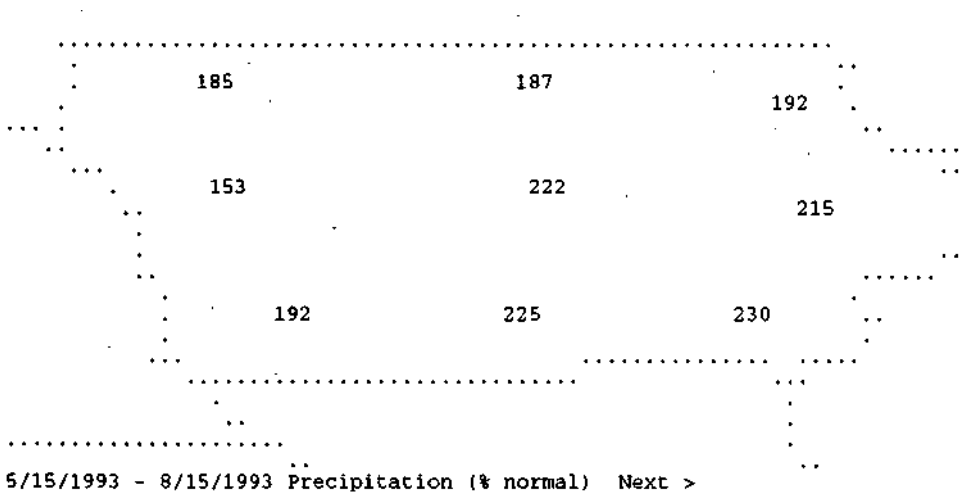
Enter region > ia

Enter beginning year (4-digits) > 1993
Enter beginning month (1-12) > 5
Enter beginning day (1-31) > 15

Enter ending year (4-digits) > 1993
Enter ending month (1-12) > 8
Enter ending day (1-31) > 15

Variables: 1) temperature
2) temperature (deviation from normal)
3) precipitation
4) precipitation (percent of normal)

Enter choice > 4



34. Regional map of daily high temperatures for the MCC region

Main Menu Choice: 1 (Daily Climate Observations(Temp,Precip))
Secondary Menu Choice : 0 (Mapped)

Climate Element Plotting Menu

Choices:

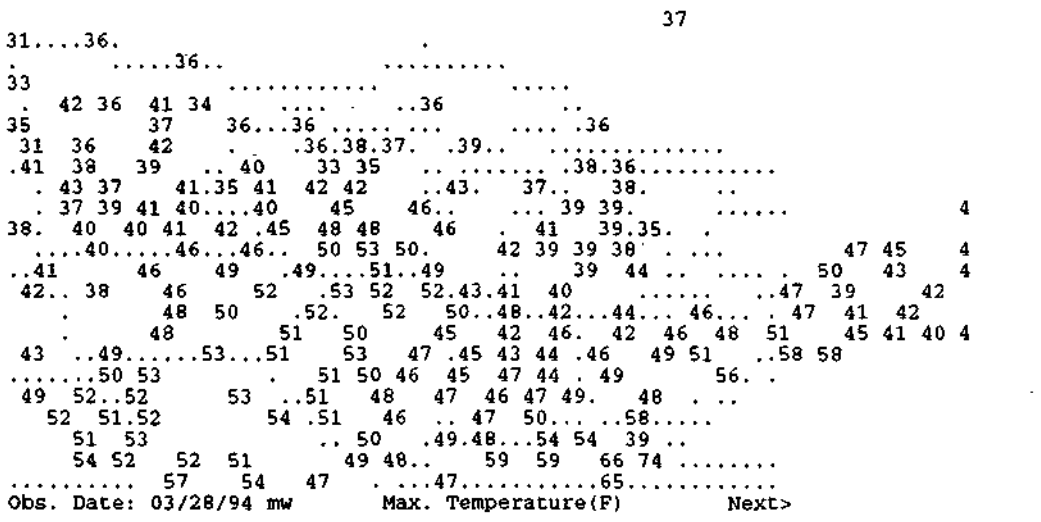
Elements: p sf sd lt ht lst hst
Derived: ptot sftot
FAA Based: sr pe ws wv wd rhl rhh dp <--NEW

Maps: mw MW ia il in ky mn mi UP mo nd oh wi

Date: d + -

q = quit h = Help

Enter Choice(s) [03/28/94 mw p] > mw ht



35. Monthly summary of daily data collected at Chicago. O'Hare

Main Menu Choice: 10 (Daily Humidity,Wind,Pressure,Evaporation,Radiation Data)
Secondary Menu Choice: 3 (Single Station Data by Month)

Enter Year (4-digits) [1994] > **1994**
Enter Month (1-12) [05] > 3

Station: (ORD) CHICAGO_OHARE_WSO_AP

yyyymmdd	Air Temp (F)	WetB Temp (F)	DewP Temp (F)	Min RelH (per)	Max RelH (per)	Wind Speed (mph)	Wind Direc (deg)	SeaLev Press (mb)	Solar Radiat (MJ/sq m)	Pot Evap (in)
19940301	27	26	24	72	95	11	52	1027	8.1	0.02
19940302	25	23	20	63	95	9	357	1021	13.3	0.04
19940303	32	30	26	65	95	10	247	1012	13.1	0.05
19940304	39	37	32	51	82	11	296	1008	13.6	0.06
19940305	41	37	32	48	100	8	197	1015	10.8	0.05
19940306	48	41	32	37	82	9	265	1015	12.4	0.09
19940307	41	36	29	37	92	11	291	1020	12.3	0.08
19940308	31	25	12	36	51	13	293	1025	13.1	0.10
19940309	29	26	18	49	79	9	54	1022	12.1	0.05
19940310	30	27	22	54	91	8	295	1021	7.4	0.02
19940311	31	28	22	46	95	6	82	1031	12.1	0.04
19940312	44	39	33	45	96	11	208	1026	9.9	0.08
19940313	38	36	34	51	100	5	282	1020	8.9	0.03
19940314	42	38	35	60	100	12	222	1009	7.9	0.05
19940315	40	35	28	41	82	14	310	1009	12.9	0.10
19940316	28	23	12	34	65	11	6	1020	16.3	0.08
19940317	31	26	15	35	82	9	162	1012	9.5	0.06
19940318	35	31	25	50	89	10	317	1003	5.9	0.03
19940319	38	33	27	44	91	6	214	1014	14.5	0.06
19940320	50	43	35	34	79	9	121	1008	13.3	0.11
19940321	47	42	36	36	93	11	311	1005	9.0	0.06
19940322	54	44	33	29	75	11	219	1009	17.0	0.16
19940323	62	50	39	26	70	13	194	1003	12.3	0.16
19940324	42	37	29	48	76	17	283	1012	8.4	0.09
19940325	35	30	21	42	63	11	18	1023	17.9	0.10
19940326	38	35	29	57	89	9	146	1014	7.2	0.04
19940327	41	38	34	52	96	8	315	1007	9.7	0.04
19940328	38	34	29	53	85	8	301	1013	7.7	0.03
19940329	36	31	24	41	87	8	305	1023	10.5	0.06
19940330	34	30	23	41	91	5	299	1029	11.5	0.04
19940331	41	34	22	31	72	10	239	1023	18.9	0.13

36. Illinnis Climate Network monthly summary

Main Menu Choice: 11 (Illinois Climate Network Data)

The Illinois Climate Network (ICN) provides detailed daily climate data for 18 stations in Illinois. The ICN is operated by the Illinois State Water Survey (Illinois Department of Energy and Natural Resources) under the direction of Dr. Steven Hollinger. Data are available by month beginning with January 1990. Data are normally updated on Monday, Wednesday and Friday afternoons.

Illinois Climate Network (ICN)

Enter last two digits of year (i.e. 1990 = 90) or q to quit > 94

Enter month number or q to quit > 4

Station Name
1 Bondville
2 Dixon Springs
3 Brownstown
4 0rr
5 DeKalb
6 Monmouth
7 Kilbourne
8 Peoria
9 Springfield
10 Belleville
11 Carbondale
12 Olney
13 Freeport
14 Ina
15 Stelle
16 Wildlife Park
17 St. Charles
18 Champaign
19 Fairfield

Enter Station number > 13

Summary for Freeport 4/94

DAY	MAX WIND SPEED MPH	AVG WIND SPEED MPH	DIR AVG WIND (deg)	TOTAL SOLAR RAD MJ/M*M	MAX AIR TEMP (F)	MIN AIR TEMP (F)	AVG AIR TEMP (F)	MAX REL HUM %	MIN REL HUM %	AVG DEW POINT (F)
1	22.7	4.9	226.8	23.81	65.0	33.0	50.0	95.1	38.7	39.2
2	28.6	11.4	299.8	21.57	55.9	36.0	45.9	94.5	56.5	39.4
3	25.8	8.1	312.4	25.33	49.2	28.5	38.1	87.3	37.2	26.4
4	33.7	13.0	186.9	17.49	62.0	33.1	47.1	97.0	38.6	37.2
5	31.7	15.4	19.8	15.47	40.7	28.8	33.1	98.7	58.9	28.8
6	26.3	10.0	16.1	22.46	40.5	26.3	32.0	94.1	42.7	23.0
7	18.4	5.5	176.3	25.27	50.3	20.0	37.4	94.8	35.2	24.6
8	34.2	11.8	164.5	6.48	54.6	34.7	45.7	91.1	59.5	39.6
9	26.4	9.0	268.3	18.84	60.8	39.2	51.3	98.7	35.8	39.4
10	22.7	7.6	34.9	25.42	58.7	37.4	48.0	92.9	32.3	35.2
11	30.8	9.1	84.7	9.93	52.2	41.8	45.7	94.5	53.7	36.1
12	26.6	9.8	146.0	3.83	53.5	41.2	45.1	100.0	89.5	44.6
13	22.4	8.4	235.9	8.51	50.8	41.2	45.5	100.0	92.1	44.8
14	35.3	7.9	174.7	23.46	70.0	42.7	57.6	98.9	54.3	52.9
15	41.6	15.8	251.1	7.08	64.7	45.2	52.0	99.1	63.3	48.6
16	39.6	16.2	298.7	26.26	60.7	40.2	50.9	88.6	43.2	40.3
17	30.7	9.4	300.4	26.89	67.0	41.7	55.4	88.2	32.1	40.8
18	27.5	11.5	220.7	23.22	83.7	52.0	67.3	89.8	36.7	54.7
19	35.2	11.9	323.0	27.91	65.8	44.8	56.5	69.7	30.2	36.5
20	15.7	5.2	334.0	17.45	57.6	38.2	48.0	95.0	30.9	34.0
21	15.1	5.0	64.3	25.84	60.1	41.3	50.2	97.0	30.4	34.0
22	12.9	3.6	119.7	27.59	63.1	32.7	49.3	90.0	29.1	30.4
23	32.3	13.2	204.0	27.49	70.1	38.9	56.3	65.1	29.4	35.4
24	30.9	12.8	215.2	18.01	81.5	53.0	66.9	90.0	61.7	58.8
25	31.4	11.3	205.4	15.35	81.3	62.0	70.3	98.4	64.8	65.5
26	48.8	17.4	213.7	24.22	81.8	55.0E	70.0	99.0	31.0E	58.3
27	26.7	9.4	317.3	10.90	54.2	37.6	46.4	95.9	64.9	43.2
28	30.3	9.7	86.1	3.83	49.9	34.4	39.4	100.0	91.6	38.5
29	30.1	10.5	303.1	24.49	51.3	35.6	43.9	96.9	66.3	39.4
30	25.5	8.0	16.3	4.42	41.2	33.1	36.5	99.8	85.6	35.2
TOT				558.82						
AVG		10.1	253.4	18.63	59.9	39.0	49.4	93.3	50.5	40.2
MAX	48.8				83.7			100.0		
MIN						20.0			29.1	

Summary For Freeport 4/94 (Cont.)

DAY	TOTAL PRECIP IN	TOTAL EVAP IN	MAX 4" SOIL TEMP (F)	MIN 4" SOIL TEMP (F)	AVG 4" SOIL TEMP (F)	MAX 8" SOIL TEMP (F)	MIN 8" SOIL TEMP (F)	AVG 8" SOIL TEMP (F)
1	0.00	0.18	51.5	36.1	43.3	46.5	37.7	41.5
2	0.00	0.15	50.5	40.5	45.0	46.8	41.1	44.1
3	0.00	0.15	49.5	38.3	43.7	46.3	40.2	43.3
4	0.00	0.13	48.7	38.8	43.7	46.4	40.4	43.3
5	0.00	0.08	46.3	38.9	42.3	45.8	41.0	43.2
6	0.00	0.12	45.0	35.5	39.9	43.5	38.0	40.8
7	0.00	0.15	48.2	34.1	40.8	44.9	37.0	40.8
8	0.00	0.04	44.0	38.3	41.4	43.9	39.6	41.7
9	0.00	0.14	48.2	38.9	43.5	45.9	39.9	42.8
10	0.00	0.18	52.3	40.4	45.9	48.2	41.4	44.4
11	0.00	0.07	47.5	41.8	44.8	47.4	42.6	45.0
12	0.55	0.02	47.0	41.7	44.1	46.1	42.3	44.2
13	0.03	0.05	48.0	42.0	45.0	46.9	42.5	44.6
14	0.16	0.18	56.5	42.0	48.7	51.7	42.7	46.6
15	0.23	0.05	53.9	45.7	50.7	52.0	47.3	50.0
16	0.00	0.19	52.3	42.3	47.1	50.0	44.2	47.3
17	0.00	0.21	54.9	43.3	48.7	51.5	44.7	47.8
18	0.00	0.20	58.6	47.1	52.7	54.6	47.2	50.5
19	0.00	0.22	58.1	49.3	53.6	54.8	49.6	52.3
20	0.00	0.12	54.6	45.6	50.2	53.4	47.6	50.5
21	0.00	0.19	58.6	46.5	51.8	54.5	47.5	50.7
22	0.00	0.20	59.5	45.4	52.0	55.0	47.5	51.3
23	0.00	0.22	57.5	46.3	51.8	54.4	48.1	51.4
24	0.00	0.16	59.8	49.4	54.3	56.3	49.8	52.7
25	0.25	0.14	62.3	53.7	57.9	58.8	52.8	55.6
26	0.00	0.22	64.7	56.7	60.1	60.7	55.3	57.7
27	0.00	0.07	59.1	51.0	54.3	59.1	52.6	55.2
28	0.03	0.02	53.3	46.7	49.1	55.0	48.6	51.3
29	0.01	0.15	54.7	44.7	49.3	52.7	47.0	49.8
30	0.22	0.02	51.0	42.6	46.6	52.1	45.5	48.7
TOT	1.48	4.02						
AVG		0.13	53.2	43.4	48.1	50.8	44.7	47.6
MAX			64.7			60.7		
MIN				34.1			37.0	

37. Growing degree day projection by climate division

Main Menu Choice: 12 (Growing Degree Day Information (regional and site specific))
Secondary Menu Choice: 2 (Degree Day Projections by Climate Division)

This program will give the accumulated growing degree days for your selected starting time to the first 32F fall frost for the climate division that you select If your selected starting date is before todays date then the actual accumulated degree days and the 30-year normal are shown. The remainder of the season is based on historical temperatures divided into 5 forecast categories.

State: il in ia ky mi mn mo oh wi q
enter state or q to quit > ia

Iowa has 9 climate divisions
Enter the climate division(s) of interest > 5

enter begin month [06] > 5
enter begin day [09] > 15

Please choose: 1) Growing Degree Days
2) Corn Growing Degree Days (Ceiling 86F)

Enter choice [1] >2

Please enter the degree day base [50] > 50

Accumulated Degree Days From Selected Date to First 32F Fall Frost
Iowa Climate Division: 5
Starting Date: 05/15/94
Corn Growing Degree Days Base: 50 Ceiling: 86

Accumulated Through Today: 431 Normal: 383

Assumed Degree Day Projection	<--Degree Day Total For the Season-> Early Frost 1 of 10 yrs Sep 25	Average Frost 5 of 10 yrs Oct 06	Late Frost 9 of 10 yrs Oct 26
Much Below Normal (10th Percentile)	2494	2591	2754
Below Normal (30th Percentile)	2576	2693	2863
Normal (50th Percentile)	2616	2727	2895
Above Normal (70th Percentile)	2657	2794	2944
Much Above Normal (90th Percentile)	2771	2892	3070

38. Growing degree day summary

Main Menu Choice: 12 (Growing Degree Day Information (regional and site-specific))
Secondary Menu Choice: 6 (Monthly Degree Day/Temperature/Precipitation Data by Climate Division)

This program will generate degree day/temperature/precipitation values by climate division. You will be prompted for the area, the years of interest and the type of information you want.

State: il in ia ky mi mn mo oh wi q
enter state or q to quit > in

Indiana has 9 climate divisions
Enter the climate division(s) of interest > 5

Enter the beginning year (4-digits) between 1948 and 1994 [1994] > **1984**
Enter the ending year (4-digits) between 1948 and 1994 [1994] > **1993**

1) Heating Degree Days (Base: 65 F)
2) Cooling Degree Days (Base: 65 F)
3) Corn Growing Degree Days (Base: 50 F Ceiling: 86 F)
4) Growing Degree Days (Base: 42 F)
5) Temperature
6) Precipitation
7) Palmer Drought Severity Index

Enter choice [1] >3

Indiana Climate Division 5
Corn Growing Degree Days, Base 50

year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
1984	0	43	8	150	330	717	663	710	441	351	63	61	3537
1985	3	17	97	332	455	563	710	635	515	306	100	3	3736
1986	8	20	130	265	439	652	790	610	583	263	37	0	3797
1987	3	6	107	226	577	682	766	688	528	165	126	8	3882
1988	10	7	89	207	479	619	773	751	498	136	64	19	3652
1989	19	4	110	194	353	604	750	657	436	287	67	0	3481
1990	19	25	125	203	309	620	682	636	494	245	126	20	3504
1991	0	21	86	255	597	705	754	702	508	302	57	14	4001
1992	0	27	92	189	364	513	682	550	450	222	57	12	3158
1993	5	6	45	158	420	598	788	721	360	230	47	1	3379
Normal	7	13	82	212	417	616	729	672	497	264	85	18	3612

39. River and lake condition report for the Upper Mississippi River Valley

Main Menu Choice: 13 (River and Lake Conditions)
Secondary Menu Choice: 3 (River Forecast for Upper Mississippi)

```
RWUS11 KMSP 231424
MNZALL-241800-

DAILY RIVER SUMMARY
NATIONAL WEATHER SERVICE MINNEAPOLIS/ST PAUL MN
 920 AM CDT MON MAY 23 1994
...NOTE....
BLOFS MEANS. . . BELOW FLOOD STAGE
LITTLE CHANGE MEANS...LESS THAN 0.5 //(1/2)// FOOT CHANGE IN 3 DAYS
R. . .INDICATES A RISE      M. ..INDICATES MISSING    E...ESTIMATED
DATA
F. . .INDICATES A FALL     N/C...INDICATES NO CHANGE
```

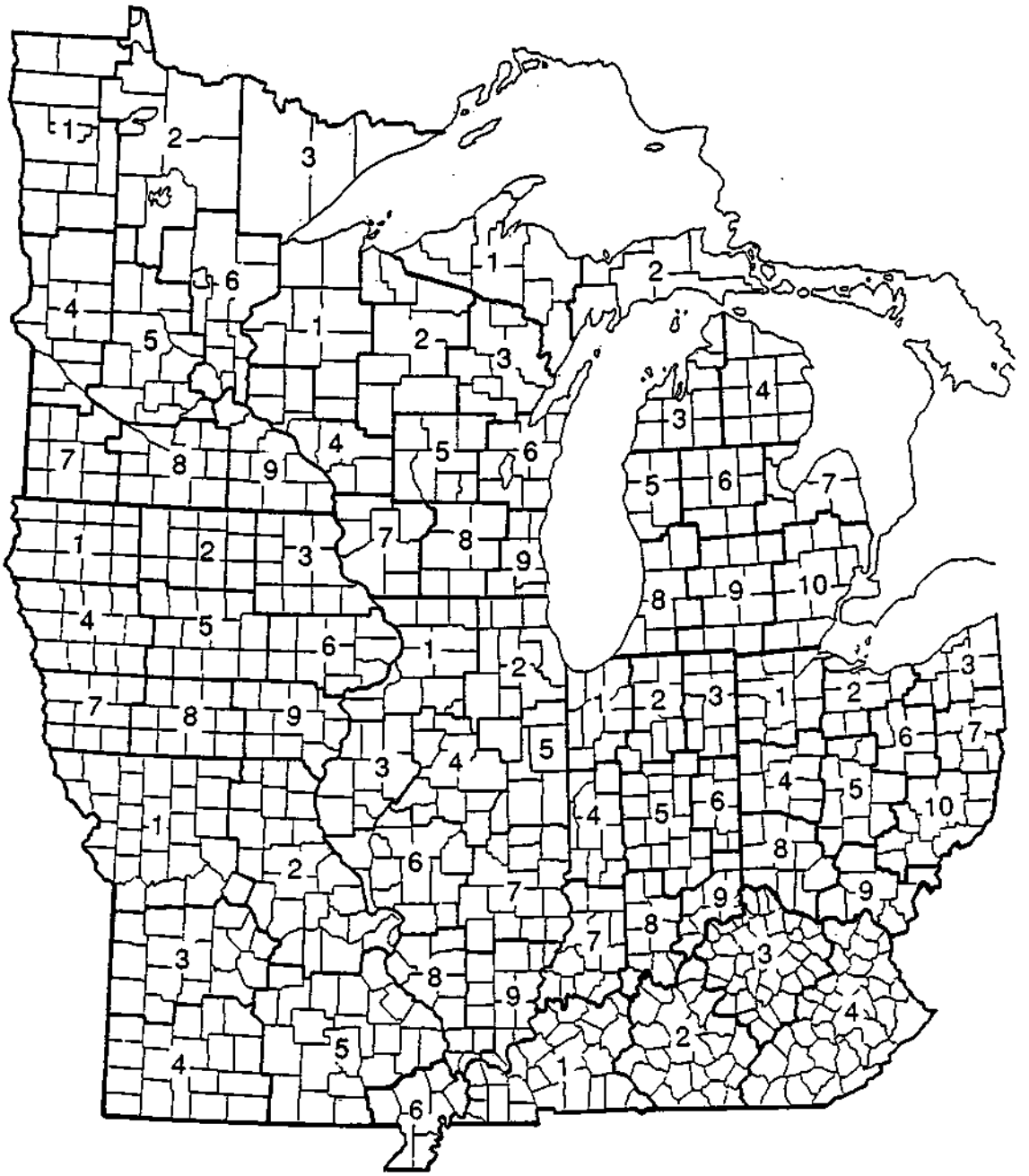
..STATION..	FLOOD STAGE	TODAYS STAGE	24 HOUR CHANGE	3-DAY FORECAST 5/24	5/25	5/26	CREST FORECASTS
..MISSISSIPPI R..							
AITKIN MN	12	8.2	0.3F				
FT. RIPLEY MN	10	6.6	0.2F				
MINNEAPOLIS MN	16	7.4	0.6F	7.3	7.1	7.0	
ST PAUL MN	14	6.6	0.5F	6.5	6.5	6.4	
HASTINGS MN	15	9.0	0.3F	8.8	8.7	8.7	
RED WING MN	14	6.9	0.2F	6.6	6.2	5.7	
LAKE CITY MN	16	9.8	0.2F	9.5	9.1	8.6	
WABASHA MN	12	9.3	0.2F	9.2	9.1	8.8	
ALMA WI	16	7.0	0.2F	6.8	6.6	6.3	
WINONA MN	13	7.8	0.2F	7.5	7.3	7.0	
LA CROSSE WI	12	7.3	0.3F	7.1	6.9	6.7	
LANSING IA	18	8.9	0.1F	LITTLE	CHANGE		
MCGREGOR IA	16	10.3	0.4F	LITTLE	CHANGE		
GUTTENBERG IA	15	9.4	0.4F	9.3	9.1	9.0	
DUBUQUE IA	17	11.4	0.4F	11.2	11.0	10.8	
..MINNESOTA R..							
MONTEVIDEO MN	14	11.4	1.0F				
MANKATO MN	17	11.4	0.2F				
JORDAN MN	20	16.8	0.5F				
SAVAGE MN	698	695.0	0.5F				
..ST CROIX R...							
STILLWATER MN	87	79.3	0.3F	79.6	79.3	78.9	

```
THE PRECEDING FORECASTS ARE BASED ON RIVER AND PRECIPITATION DATA
RECEIVED AS OF 8 AM TODAY.  RAINFALL AMOUNTS RECEIVED AFTER 8 AM
TODAY WILL BE REFLECTED IN THE RIVER FORECAST FOR TOMORROW.
GPM
```

APPENDIX B.

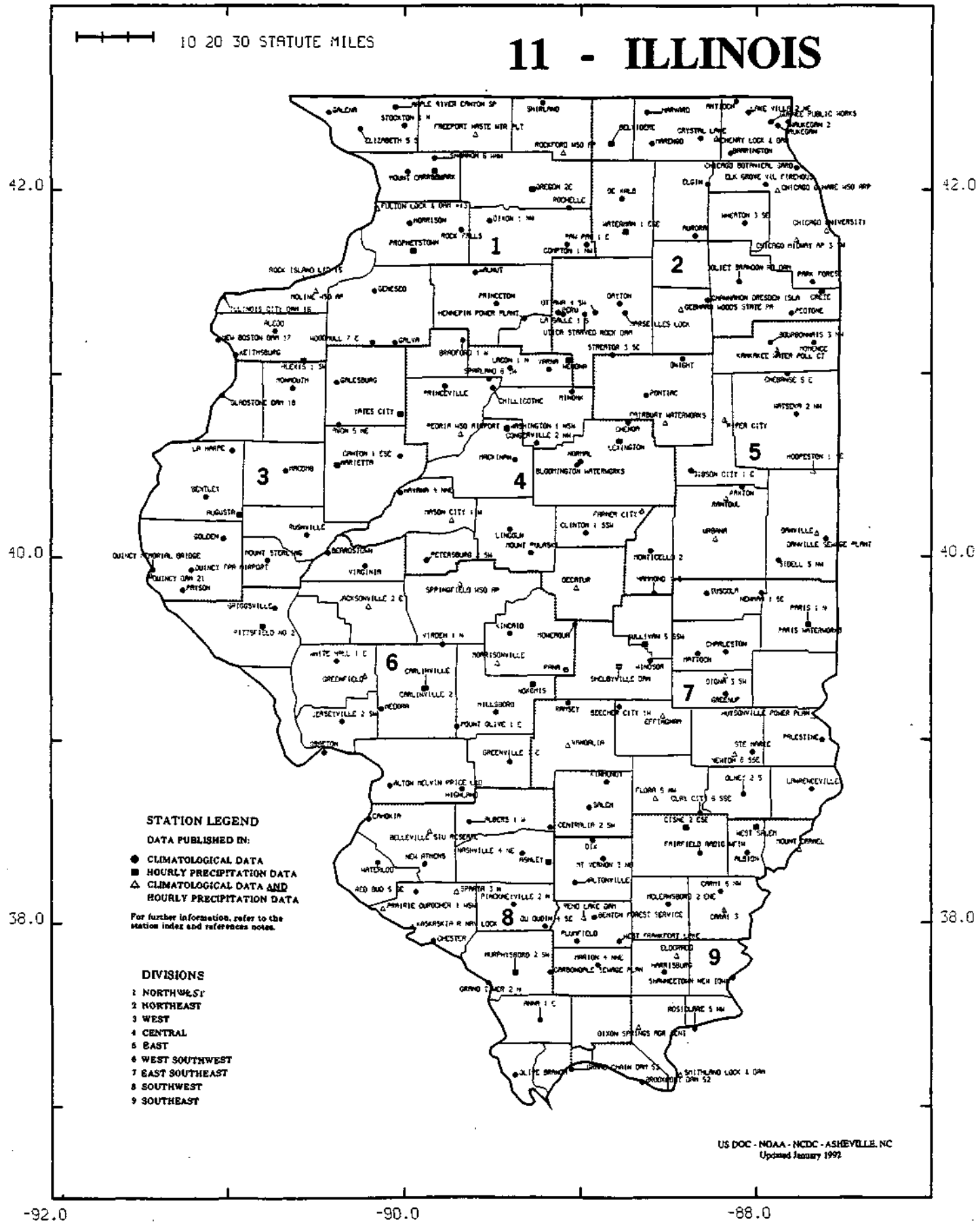
Regional Climate Division Map

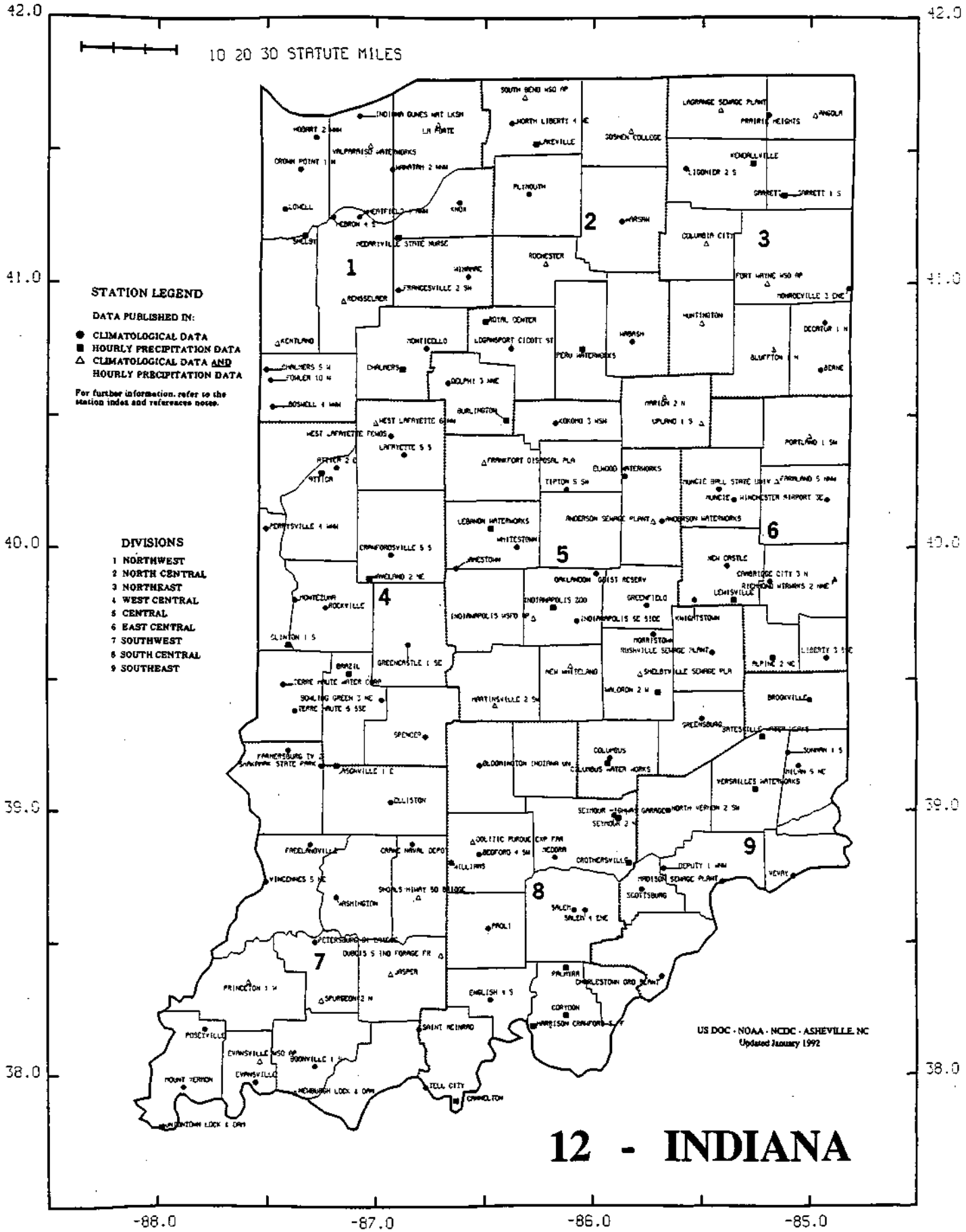
Regional Climate Division Map



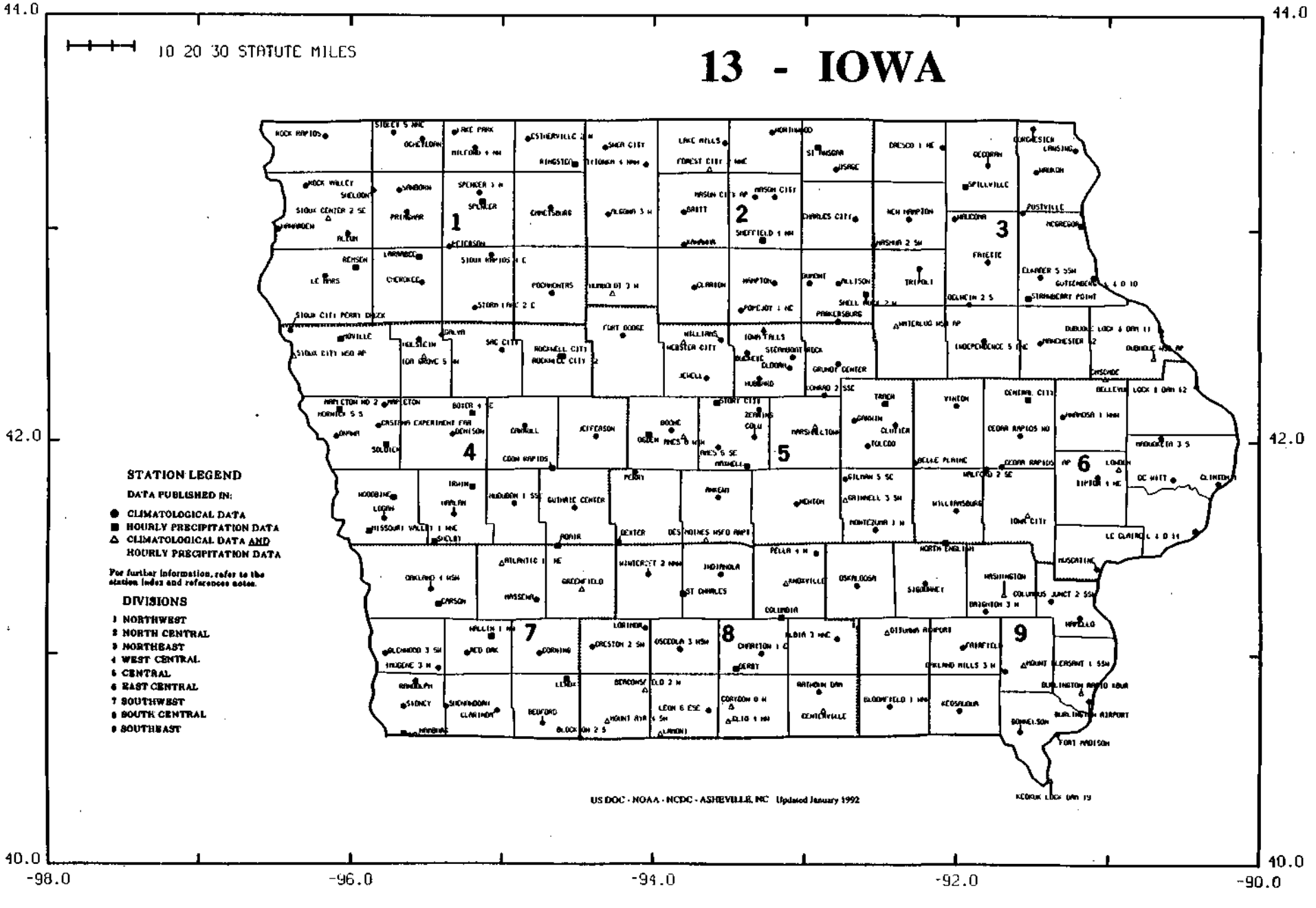
APPENDIX C.

State Climate Division and Station Maps

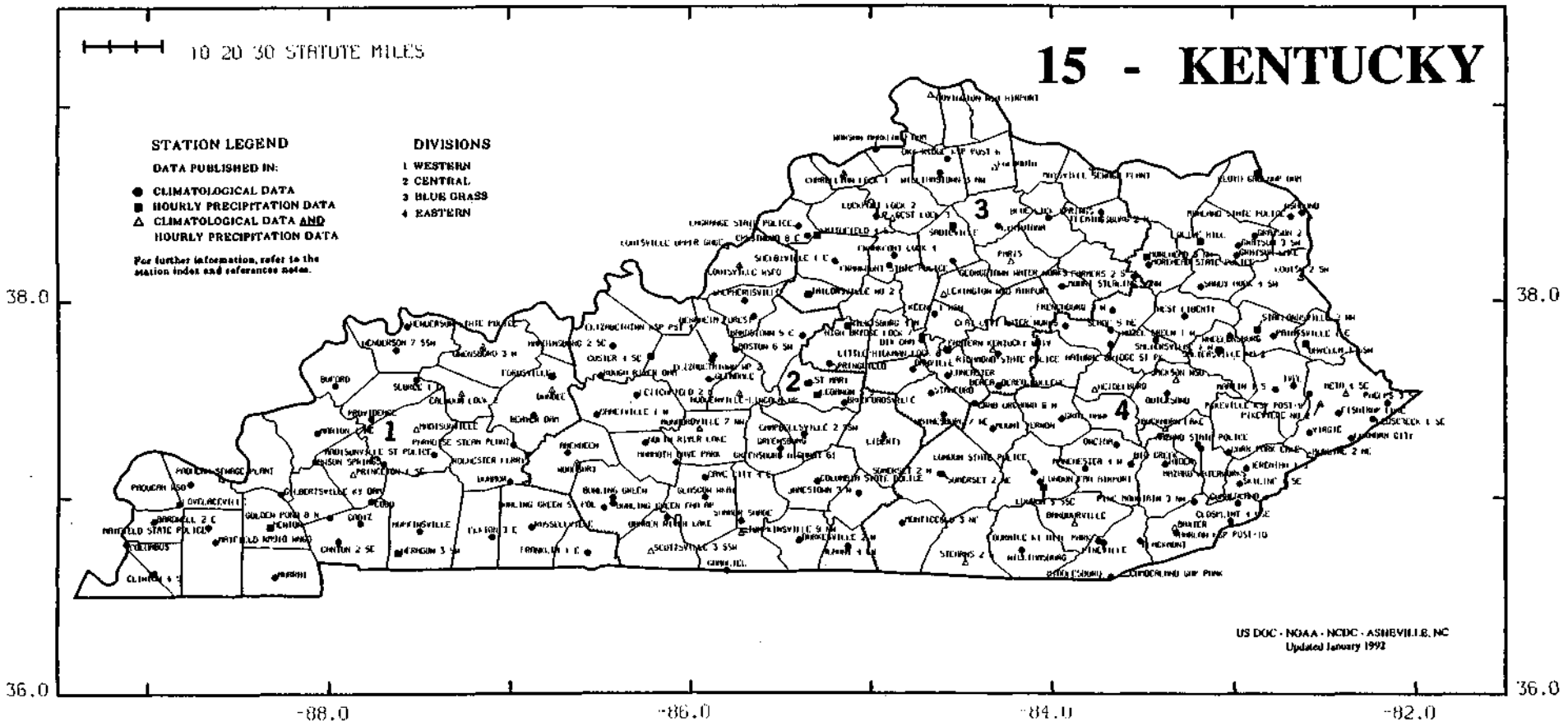

10 20 30 STATUTE MILES
11 - ILLINOIS
42.0
40.0
38.0
-92.0
-90.0
-88.0
1
2
3
4
5
6
7
8
9
STATION LEGEND
DATA PUBLISHED IN:
CLIMATOLOGICAL DATA
HOURLY PRECIPITATION DATA
CLIMATOLOGICAL DATA AND HOURLY PRECIPITATION DATA
For further information, refer to the station index and references notes.
DIVISIONS
1 NORTHWEST
2 NORTHEAST
3 WEST
4 CENTRAL
5 EAST
6 WEST SOUTHWEST
7 EAST SOUTHEAST
8 SOUTHWEST
9 SOUTHEAST
US DOC - NOAA - NCDC - ASHEVILLE, NC
Updated January 1992

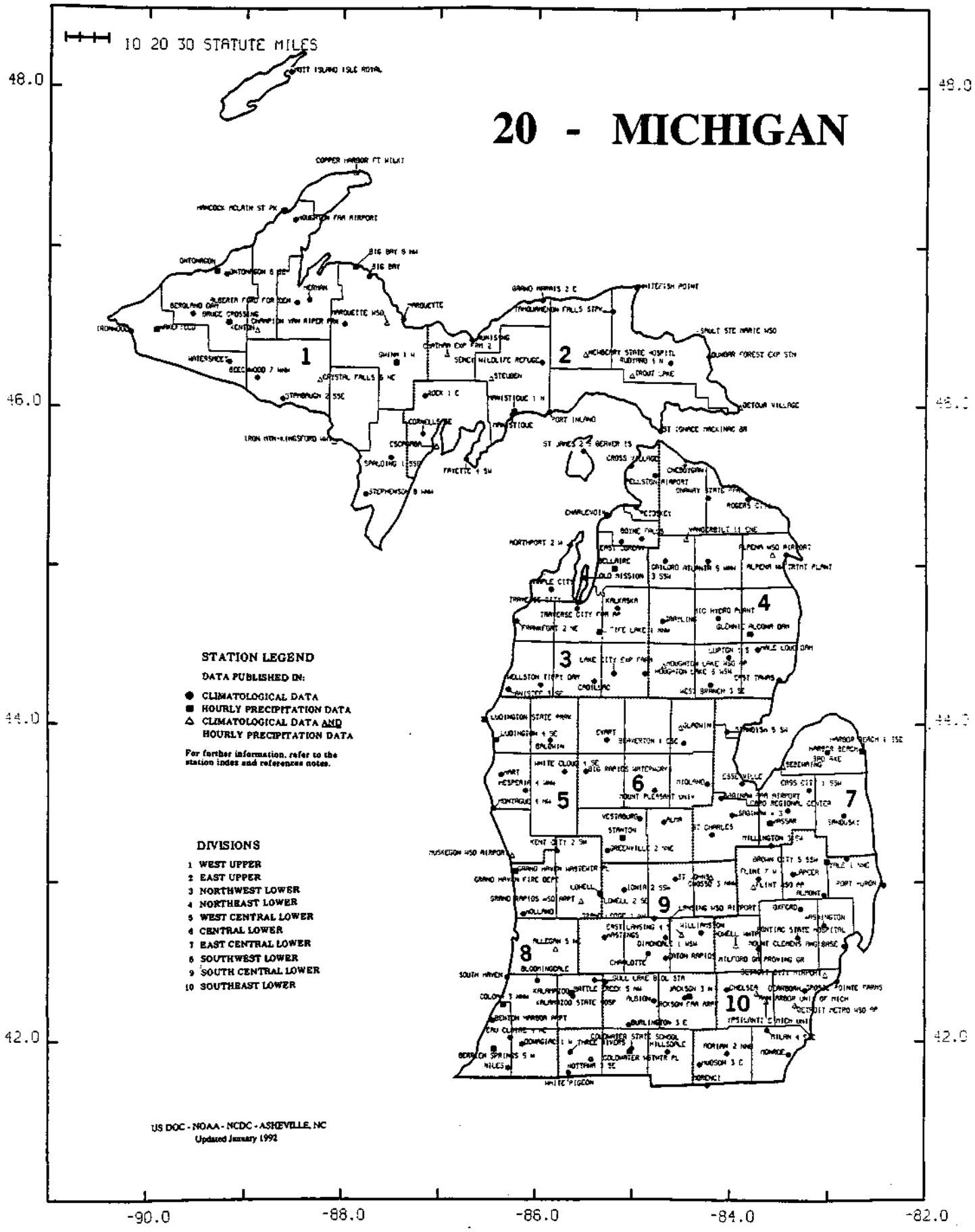

10 20 30 STATUTE MILES
STATION LEGEND
DATA PUBLISHED IN:
CLIMATOLOGICAL DATA
HOURLY PRECIPITATION DATA
CLIMATOLOGICAL DATA AND HOURLY PRECIPITATION DATA
For further information, refer to the station index and references notes.
DIVISIONS
1 NORTHWEST
2 NORTH CENTRAL
3 NORTHEAST
4 WEST CENTRAL
5 CENTRAL
6 EAST CENTRAL
7 SOUTHWEST
8 SOUTH CENTRAL
9 SOUTHEAST
42.0
41.0
40.0
39.0
38.0
-88.0
-87.0
-86.0
-85.0
US DOC - NOAA - NCDC - ASHEVILLE, NC
Updated January 1992
12 - INDIANA

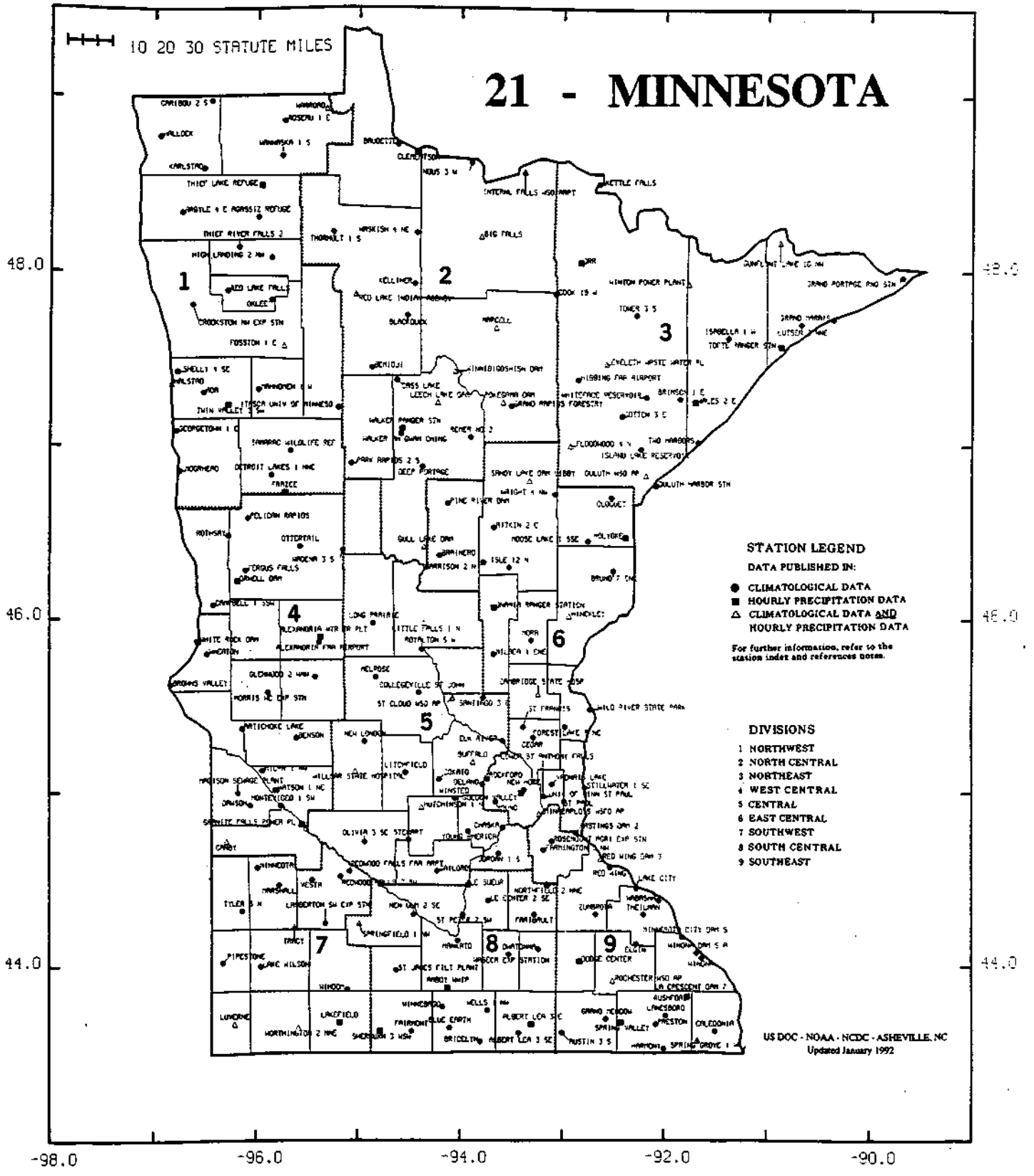
13 - IOWA


10 20 30 STATUTE MILES
44.0
42.0
40.0
-98.0
-96.0
-94.0
-92.0
-90.0
STATION LEGEND
DATA PUBLISHED IN:
CLIMATOLOGICAL DATA
HOURLY PRECIPITATION DATA
CLIMATOLOGICAL DATA AND HOURLY PRECIPITATION DATA
For further information, refer to the station index and references notes.
DIVISIONS
1 NORTHWEST
2 NORTH CENTRAL
3 NORTHEAST
4 WEST CENTRAL
5 CENTRAL
6 EAST CENTRAL
7 SOUTHWEST
8 SOUTH CENTRAL
9 SOUTHEAST
US DOC - NOAA - NCDC - ASHEVILLE, NC Updated January 1992

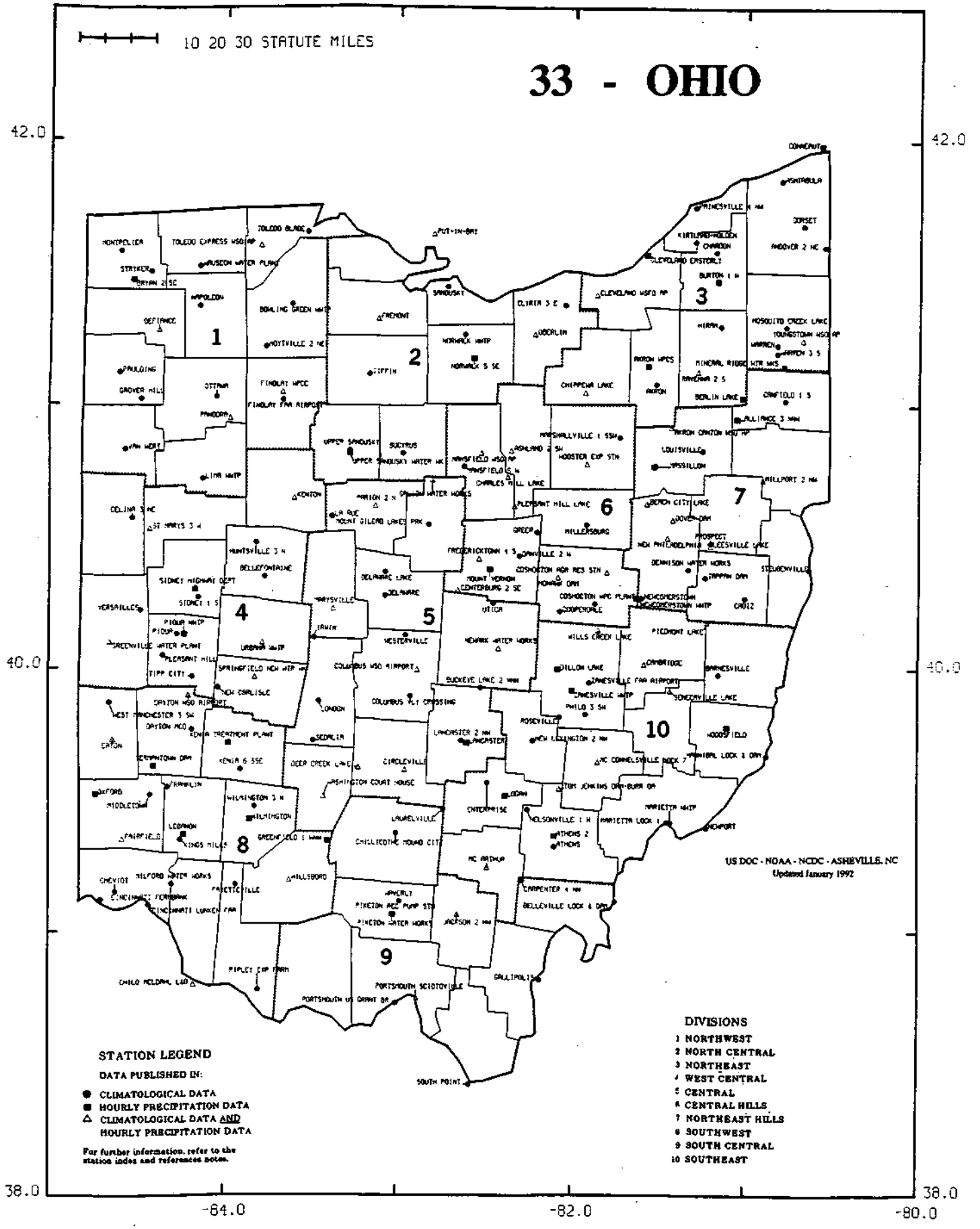
15 - KENTUCKY


10 20 30 STATUTE MILES
STATION LEGEND
DATA PUBLISHED IN:
CLIMATOLOGICAL DATA
HOURLY PRECIPITATION DATA
CLIMATOLOGICAL DATA AND HOURLY PRECIPITATION DATA
For further information, refer to the station index and references notes.
DIVISIONS
1 WESTERN
2 CENTRAL
3 BLUE GRASS
4 EASTERN
38.0
36.0
-88.0
-86.0
-84.0
-82.0
US DOC - NOAA - NCDC - ASHEVILLE, NC
Updated January 1992


10 20 30 STATUTE MILES
20 - MICHIGAN
48.0
46.0
44.0
42.0
-90.0
-88.0
-86.0
-84.0
-82.0
STATION LEGEND
DATA PUBLISHED IN:
CLIMATOLOGICAL DATA
HOURLY PRECIPITATION DATA
CLIMATOLOGICAL DATA AND HOURLY PRECIPITATION DATA
For further information, refer to the station index and references notes.
DIVISIONS
1 WEST UPPER
2 EAST UPPER
3 NORTHWEST LOWER
4 NORTHEAST LOWER
5 WEST CENTRAL LOWER
6 CENTRAL LOWER
7 EAST CENTRAL LOWER
8 SOUTHWEST LOWER
9 SOUTH CENTRAL LOWER
10 SOUTHEAST LOWER
US DOC - NOAA - NCDC - ASHEVILLE, NC
Updated January 1992


10 20 30 STATUTE MILES
21 - MINNESOTA
48.0
46.0
44.0
-98.0
-96.0
-94.0
-92.0
-90.0
1
2
3
4
5
6
7
8
9
STATION LEGEND
DATA PUBLISHED IN:
CLIMATOLOGICAL DATA
HOURLY PRECIPITATION DATA
CLIMATOLOGICAL DATA AND HOURLY PRECIPITATION DATA
For further information, refer to the station index and references notes.
DIVISIONS
1 NORTHWEST
2 NORTH CENTRAL
3 NORTHEAST
4 WEST CENTRAL
5 CENTRAL
6 EAST CENTRAL
7 SOUTHWEST
8 SOUTH CENTRAL
9 SOUTHEAST
US DOC - NOAA - NCDC - ASHEVILLE, NC
Updated January 1992


10 20 30 STATUTE MILES
STATION LEGEND
DATA PUBLISHED IN:
CLIMATOLOGICAL DATA
HOURLY PRECIPITATION DATA
CLIMATOLOGICAL DATA AND HOURLY PRECIPITATION DATA
For further information, refer to the station index and references notes.
DIVISIONS
1 NORTHWEST PRAIRIE
2 NORTHEAST PRAIRIE
3 WEST CENTRAL PLAINS
4 WEST OZARKS
5 EAST OZARKS
6 BOOTHEEL
40.0
38.0
36.0
-96.0
-94.0
-92.0
-90.0
23 - MISSOURI
US DOC - NOAA - NCDC - ASHEVILLE, NC Updated January 1992


10 20 30 STATUTE MILES
33 - OHIO
42.0
40.0
38.0
-84.0
-82.0
-80.0
1
2
3
4
5
6
7
8
9
10
US DOC - NOAA - NCDC - ASHEVILLE, NC
Updated January 1992
STATION LEGEND
DATA PUBLISHED IN:
CLIMATOLOGICAL DATA
HOURLY PRECIPITATION DATA
CLIMATOLOGICAL DATA AND HOURLY PRECIPITATION DATA
For further information, refer to the station index and references notes.
DIVISIONS
1 NORTHWEST
2 NORTH CENTRAL
3 NORTHEAST
4 WEST CENTRAL
5 CENTRAL
6 CENTRAL HILLS
7 NORTHEAST HILLS
8 SOUTHWEST
9 SOUTH CENTRAL
10 SOUTHEAST


10 20 30 STATUTE MILES
47 - WISCONSIN
STATION LEGEND
DATA PUBLISHED IN:
● CLIMATOLOGICAL DATA
■ HOURLY PRECIPITATION DATA
△ CLIMATOLOGICAL DATA AND HOURLY PRECIPITATION DATA
For further information, refer to the station index and references notes.
DIVISIONS
1 NORTHWEST
2 NORTH CENTRAL
3 NORTHEAST
4 WEST CENTRAL
5 CENTRAL
6 EAST CENTRAL
7 SOUTHWEST
8 SOUTH CENTRAL
9 SOUTHEAST
US DOC - NOAA - NCDC - ASHEVILLE, NC
Updated January 1992
46.0
44.0
42.0
-92.0
-90.0
-88.0

APPENDIX D.

Daily Real-time Station Listing Grouped by State

The following tables list the real-time climate stations (i.e., stations that report at least 25% of the time in real-time) in the nine-state MCC region. To give some idea of how timely the data are, we have also included the typical reporting frequencies for these stations. Please note that this list does not include all the historical stations available on MICIS. A complete station listing including all stations east of the Rocky Mountains can be obtained on-line by working through the station selection process.

ILLINOIS

Stn No	Precip Freq %	Temp Freq %	Stn Name
110072	20.5	64.8	ALEDO
110492	77.9	0.0	BEARDSTOWN
110510	87.7	87.7	BELLEVILLE_SIU_RESEARCH
110803	53.3	0.0	BOURBONNAIS_3_NW
110993	84.4	0.0	BROOKPORT_DAM_52
111169	99.2	0.0	CAIRO_RIVER
111265	82.0	82.0	CARBONDALE_SEWAGE_PLANT
111290	95.1	0.0	CARLYLE_RESERVOIR
111297	100.0	0.0	CARMI_2
111420	88.5	0.0	CHANNAHON_DRESDEN_ISLAN
111491	97.5	0.0	CHESTER
111497	93.4	93.4	CHICAGO_BOTANICAL_GARDE
111549	100.0	100.0	CHICAGO_O'HARE_WSO_ARPT
111577	77.9	99.2	CHICAGO_MIDWAY_AP_3_SW
111763	97.5	0.0	COAL_CITY_4_W
111830	97.5	0.0	COLMAR
111833	95.1	0.0	COMO
111836	85.2	0.0	CONGERVILLE_2_NW
112145	98.4	0.0	DANVILLE_SEWAGE_PLANT
112178	97.5	0.0	DAYTON
112223	82.0	82.0	DE_KALB
112483	73.8	73.8	DU_QUOIN_2_S
112736	30.3	4.9	ELGIN
112745	96.7	96.7	ELIZABETH_5_S
113109	81.1	0.0	FLORA_5_NW
113262	96.7	0.0	FREEPORT_WASTE_WTR_PLT
113290	100.0	0.0	FULTON_LOCK_&_DAM_#13
113320	85.2	85.2	GALESBURG
113387	97.5	0.0	GENESEO_2_N
113455	99.2	0.0	GLADSTONE_DAM_18
113522	95.1	0.0	GOLCONDA_1_SE
113580	99.2	0.0	GRAND_CHAIN_DAM_53
113688	85.2	0.0	GREENVIEW_4_N
113852	93.4	0.0	HARDIN
113902	27.9	0.0	HARVARD
113944	97.5	0.0	HAVANA_POWER_STN_1_SSW
114198	84.4	83.6	HOOPESTON
114317	90.2	89.3	HUTSONVILLE_POWER_PLANT
114355	99.2	0.0	ILLINOIS_CITY_DAM_16
114400	24.6	59.8	IUKA_7_SW
114442	63.1	77.0	JACKSONVILLE_2_E
114530	97.5	0.0	JOLIET_BRANDON_RD_DAM
114559	92.6	0.0	JOSLIN
114603	55.7	55.7	KANKAKEE_SEWAGE_PLANT
114655	95.9	0.0	KEITHSBURG_1_NW
114837	95.9	95.9	LAKE_VILLA_2_NE
114923	98.4	0.0	LA_SALLE_1_S
114957	52.5	51.6	LAWRENCEVILLE
115030	94.3	0.0	LEONORE_3_NE
115163	97.5	0.0	LONDON_MILLS_1_SW
115219	95.1	0.0	LOVINGTON_2_NW
115334	27.0	0.0	MARIETTA
115370	96.7	0.0	MARSEILLES_NO._2
115372	86.1	86.1	MARSEILLES_LOCK
115493	95.1	95.1	MCHENRY_LOCK_&_DAM
115712	91.8	92.6	MINONK
115748	98.4	0.0	MOLINE_BRIDGE
115751	100.0	100.0	MOLINE_WSO_AP
115758	93.4	0.0	MOMENCE
115792	27.0	0.0	MONTICELLO_2
115841	81.1	82.0	MORRISONVILLE
115888	100.0	0.0	MOUNT_CARMEL
115901	85.2	87.7	MOUNT_CARROLL
115943	63.9	63.9	MT_VERNON_3_NE
116080	100.0	0.0	NEW_BOSTON_DAM_17
116300	91.8	0.0	OAKFORD_2_NW
116383	88.5	95.9	OLIVE_BRANCH
116526	73.0	72.1	OTTAWA_4_SW
116616	29.5	9.0	PARK_FOREST
116661	95.1	95.1	PAW_PAW_1_E
116701	93.4	0.0	PEORIA_FT_GRANT_ST
116711	100.0	100.0	PEORIA_WSO_AIRPORT
116745	100.0	73.0	PERRYVILLE

ILLINOIS

Stn No	Precip Freq %	Temp Freq %	Stn Name
116753	69.7	69.7	PERU
116765	27.0	0.0	PETERSBURG_2_SW
116874	96.7	0.0	PLUMFIELD
116910	99.2	83.6	PONTIAC
116973	27.9	0.0	PRAIRIE_DUROCHER_1_WSW
117072	100.0	100.0	QUINCY_FAA_AIRPORT
117077	98.4	0.0	QUINCY_DAM_21
117082	97.5	0.0	QUINCY_MEMORIAL_BRIDGE
117278	95.9	0.0	RIPLEY
117318	95.1	0.0	RIVERTON
117354	83.6	82.8	ROCHELLE
117382	100.0	100.0	ROCKFORD_WSO_AP
117391	100.0	0.0	ROCK_ISLAND_L&D_15
117407	96.7	0.0	ROCKTON
117603	25.4	0.0	STE_MARIE_MISSION_HOSPI
117814	91.0	0.0	SEVILLE
117859	52.5	0.0	SHAWNEETOWN_NEW_TOWN
117876	98.4	0.0	SHELBYVILLE_DAM
118020	86.9	0.0	SMITHLAND_LOCK_&_DAM
118179	98.4	98.4	SPRINGFIELD_WSO_AP
118740	100.0	100.0	URBANA
118745	77.0	77.0	URBANA_EXPERIMENT_FARM
118756	96.7	0.0	UTICA_STARVED_ROCK_DAM
118932	95.9	0.0	WALTONVILLE
119021	90.2	90.2	WATSEKA_2_NW
119040	95.9	0.0	WAYNE_CITY_1_N
119148	27.0	0.0	WEST_FRANKFORT_LAKE
119325	95.1	0.0	WILMINGTON_5_S
111020	56.6	56.6	BROWNSTOWN
115772	92.6	94.3	MONMOUTH
116738	17.2	40.2	PERRY
119581	87.7	94.3	Bondville_ICN
119582	54.9	54.9	Dixon_Springs_ICN
119583	94.3	94.3	Brownstown_ICN
119584	67.2	83.6	Perry_ICN
119585	93.4	93.4	Dekalb_ICN
119586	94.3	94.3	Monmouth_ICN
119587	94.3	94.3	Kilbourne_ICN
119588	94.3	94.3	Peoria_ICN
119589	94.3	94.3	Springfield_ICN
119590	94.3	94.3	Belleville_ICN
119591	64.8	86.9	Carbondale_ICN
119592	94.3	94.3	Olney_ICN
119593	90.2	90.2	Freeport_ICN
119594	93.4	93.4	Rend_Lake_ICN
119595	94.3	94.3	Stelle_ICN
119596	94.3	94.3	Wildlife_Park_ICN
119597	88.5	94.3	St_Charles_ICN
119598	94.3	94.3	Champaign_ICN
119599	94.3	94.3	Fairfield_ICN

INDIANA

Stn No	Precip Freq %	Temp Freq %	Stn Name
120550	61.5	58.2	BEDFORD_4_SW
120784	27.0	86.9	BLOOMINGTON
120830	86.1	85.2	BLUFFTON_1_N
120852	49.2	49.2	BOONVILLE
120858	26.2	0.0	BOSWELL_4_WNW
121030	100.0	0.0	BROOKVILLE
121192	82.0	88.5	BUTLERVILLE_1_WNW
121229	39.3	93.4	CAMBRIDGE_CITY
121402	45.9	0.0	CENTERTON
121404	96.7	0.0	CENTERTON_1_S
121417	54.9	54.9	CHALMERS_5_W
121626	27.9	0.0	CLINTON
121739	84.4	84.4	COLUMBIA_CITY
121747	89.3	0.0	COLUMBUS
121841	95.1	0.0	COVINGTON_1_ESE
121873	90.2	90.2	CRAWFORDSVILLE_2_NW
121882	98.4	0.0	CRAWFORDSVILLE_POWER_PL
122096	78.7	0.0	DECATUR_1_N
122309	82.0	89.3	DUBOIS_S_IND_FORAGE_FRM
122638	25.4	66.4	ELWOOD
122733	96.7	0.0	EVANSVILLE_FORT_COURT_S
122738	100.0	100.0	EVANSVILLE_WSO_AP
122825	94.3	94.3	FARMLAND_5_NNW
123037	100.0	100.0	FORT_WAYNE_WSO_AP
123078	28.7	0.0	FRANCESVILLE_2_SW
123082	41.8	39.3	FRANKFORT_DISPOSAL_PLAN
123104	93.4	93.4	FREELANDVILLE
123418	31.1	41.0	GOSHEN_COLLEGE
123527	30.3	0.0	GREENFIELD
123547	74.6	93.4	GREENSBURG
123777	32.0	0.0	HARTFORD_CITY_5_SSW
124259	100.0	100.0	INDIANAPOLIS_WSFO_AP
124272	27.0	27.0	INDIANAPOLIS_SE_SIDE
124286	52.5	52.5	INDIANAPOLIS_ZOO
124497	91.8	91.0	KENDALLVILLE
124527	96.7	95.1	KENTLAND
124715	25.4	0.0	LAFAYETTE_5_S
124837	36.1	36.1	LA_PORTE
125050	95.1	94.3	LIBERTY_3_SSE
125117	29.5	84.4	LOGANSPORT_CICOTT_ST
125337	73.8	73.8	MARION_2_N
125658	41.8	84.4	MILAN_5_NE
125810	100.0	0.0	MONROE_DAM
125815	30.3	0.0	MONROEVILLE_3_ENE
125827	95.1	0.0	MONTEZUMA_FIRE_HOUSE
126001	30.3	88.5	MOUNT_VERNON_WATERWORK
126020	69.7	77.9	MUNCIE_BALL_STATE_UNIV
126151	100.0	0.0	NEWBURGH_LOCK_&_DAM
126164	80.3	73.0	NEW_CASTLE
126506	79.5	79.5	OAKLANDON_GEIST_RESERVO
126580	19.7	63.1	BEDFORD
126830	96.7	96.7	PERRYSVILLE_4_WNW
126989	91.0	91.0	PLYMOUTH
127102	44.3	43.4	PRAIRIE_HEIGHTS
127370	31.1	0.0	RICHMOND_WTRWRKS_2_NNE
127646	92.6	92.6	RUSHVILLE_SEWAGE_PLANT
127875	91.0	90.2	SCOTTSBURG
127935	100.0	28.7	SEYMOUR_1_N
128036	100.0	77.0	SHOALS_HIWAY_50_BRIDGE
128187	100.0	100.0	SOUTH_BEND_WSO_AIRPORT
128698	0.0	95.9	TELL_CITY
128723	96.7	96.7	TERRE_HAUTE_8_S
128784	99.2	99.2	TIPTON_5_SW
128848	46.7	59.8	TRAFALGAR
128999	98.4	96.7	VALPARAISO_WATER_WORKS
129113	31.1	87.7	VINCENNES_5_NE
129138	100.0	13.1	WABASH
129222	98.4	97.5	WANATAH_2_WNW
129267	68.0	68.9	WATERFORD_MILLS
129271	28.7	0.0	WATERLOO
129424	100.0	100.0	WEST_LAFAYETTE_FCWOS
129430	96.7	96.7	WEST_LAFAYETTE_6_NW
129435	57.4	35.2	WEST_LAFAYETTE_SEWAGE_P

INDIANA

Stn No	Precip Freq %	Temp Freq %	Stn Name
129557	92.6	95.1	WHITESTOWN
129670	82.8	87.7	WINAMAC
129678	82.0	77.9	WINCHESTER_AIRPORT_3E
129905	36.1	77.0	YOUNG_AMERICA
120764	30.3	96.7	BLOOMFIELD
121326	97.5	97.5	CASTELTON
122882	32.8	0.0	FISHERS
123587	30.3	0.8	GREENWOOD
124170	98.4	90.2	HUNTINGBURG
124270	95.1	0.0	INDIANAPOLIS
124854	28.7	0.0	LAOTTO
124880	44.3	44.3	LAWRENCEBURG
127768	13.9	40.2	SALEM

IOWA

Stn No	Precip Freq %	Temp Freq %	Stn Name
130021	98.4	0.0	ACKWORTH_2_SW
130088	95.1	0.0	AKRON
130133	26.2	60.7	ALGONA_3_W
130181	83.6	0.0	ALTON
130196	46.7	94.3	AMES
130203	95.9	0.0	AMES_5_SE
130238	84.4	0.0	ANKENY_2_SE
130372	92.6	0.0	ATLANTIC_RIVER
130389	98.4	0.0	AUGUSTA
130519	94.3	0.0	BAYARD_6_SE
130536	29.5	0.0	BEACONSFIELD_2_N
130602	93.4	0.0	BELLE_PLAINE_3_S
130608	98.4	0.0	BELLEVUE_LOCK_&_DAM_12
130745	29.5	0.0	BLOCKTON_2_S
130807	29.5	0.0	BOONE
130999	30.3	0.0	BUCKEYE
131063	100.0	100.0	BURLINGTON_AIRPORT
131064	98.4	0.0	BURLINGTON
131099	100.0	0.0	BUSSEY_3_WNW
131153	98.4	0.0	CAMANCHE
131233	30.3	38.5	CARROLL
131257	27.9	0.0	CASCADE
131314	100.0	100.0	CEDAR_RAPIDS_AP
131363	26.2	0.0	CENTRAL_CITY
131398	97.5	0.0	CHARITON_5_SE
131402	29.5	0.0	CHARLES_CITY
131737	98.4	0.0	CONESVILLE_3_NE
131823	98.4	0.0	CORALVILLE
131828	28.7	0.0	CORALVILLE_DAM
131838	99.2	0.0	CORRECTIONVILLE
131954	30.3	0.0	CRESCO_1_NE
131962	18.9	42.6	CRESTON_2_SW
132041	98.4	0.0	DAKOTA_CITY_RIVER
132055	96.7	0.0	DALLAS_2_NW
132110	47.5	92.6	DECORAH
132171	82.8	78.7	DENISON
132203	100.0	100.0	DES_MOINES_WSFO_ARPT
132208	100.0	0.0	DES_MOINES_WSO_CITY
132236	98.4	0.0	DE_WITT_4_S
132361	91.0	0.0	DUBUQUE_NO_2
132364	100.0	0.0	DUBUQUE_LOCK_&_DAM_11
132367	100.0	100.0	DUBUQUE_WSO_AP
132388	34.4	0.0	DUMONT
132555	95.1	0.0	ELBERON_3_S
132573	33.6	0.0	ELDORA
132724	32.8	68.0	ESTHERVILLE
132726	100.0	0.0	ESTHERVILLE_2
132864	28.7	63.9	FAYETTE
132999	27.0	62.3	FORT_DODGE
133000	100.0	0.0	FORT_DODGE_PHINNEY_PARK
133013	84.4	0.0	FOUR_MILE_CREEK_I_80
133113	98.4	0.0	GARBER
133120	25.4	0.0	GARWIN
133455	100.0	0.0	GRIMES_3_E
133459	84.4	0.0	GRIMES_4_WSW
133517	97.5	0.0	GUTTENBERG_L_&_D_10
133569	98.4	0.0	HAMBURG_2_NE
133584	31.1	0.0	HAMPTON
133589	92.6	0.0	HANCOCK
133671	96.7	0.0	HARTWICK_4_NW
133681	96.7	0.0	HAVEN_1_NE
133712	25.4	0.0	HAVERHILL
133909	27.9	0.0	HOLSTEIN
133946	93.4	0.0	HORNICK_1_E
133980	98.4	0.0	HUMBOLDT_WATER_PLANT
134049	30.3	0.0	INDEPENDENCE_5_ENE
134052	99.2	0.0	INDEPENDENCE
134067	100.0	0.0	INDIANOLA_5_NNW
134101	31.1	86.9	IOWA_CITY_1_S
134102	95.1	0.0	IOWA_CITY_2
134139	96.7	0.0	IOWA_CITY_5_SW
134142	27.9	0.0	IOWA_FALLS
134202	95.1	0.0	JAMES

IOWA

Stn No	Precip Freq %	Temp Freq %	Stn Name
134229	100.0	0.0	JEFFERSON_2_S
134244	26.2	0.0	JEWELL
134280	90.2	0.0	KALONA_1_SSW
134308	27.9	0.0	KANAWHA
134381	100.0	0.0	KEOKUK
134389	100.0	0.0	KEOSAUQUA_STATE_PARK
134507	96.7	0.0	KNOXVILLE_3E
134585	45.9	97.5	LAMONI
134620	27.9	0.0	LANSING
134705	98.4	0.0	LE_CLAIRE_L_&_D_14
134758	28.7	0.0	LEON_6_ESE
134820	91.0	0.0	LINN_GROVE
134874	29.5	0.0	LITTLE_SIOUX_2_NW
134898	96.7	0.0	LOGAN_2
134912	98.4	0.0	LONE_TREE_5_SW
135127	98.4	0.0	MAPLETON
135132	98.4	0.0	MAQUOKETA_RIVER
135141	33.6	0.0	MARBLE_ROCK
135150	99.2	0.0	MARENGO_2_ESE
135198	34.4	59.8	MARSHALLTOWN_2
135203	98.4	0.0	MARSHALLTOWN_WASTE_TREA
135235	100.0	100.0	MASON_CITY_AP
135750	97.5	0.0	MOULTON_5
135842	88.5	0.0	MUSCATINE_2
135952	32.0	0.0	NEW_HAMPTON_1_E
136115	95.9	0.0	NORWALK_2_SE
136190	29.5	0.0	OCHEYEDAN
136335	97.5	0.0	OSKALOOSA_4_N
136389	100.0	100.0	OTTUMWA_AIRPORT
136396	97.5	0.0	OTTUMWA_RIVER
136492	31.1	0.0	PARKERSBURG
136634	98.4	0.0	PISGAH_1_E
136895	43.4	0.0	RANDOLPH_1_W
136910	90.2	0.0	RATHBUN_DAM
136920	100.0	0.0	REDFIELD_2_E
136941	41.0	0.0	RED_OAK_2
136965	27.9	0.0	RED_ROCK_DAM
136966	86.9	0.0	RED_ROCK_DAM_TAILWATER
137152	96.7	0.0	ROCK_VALLEY
137249	94.3	0.0	ROWAN_4_NW
137256	96.7	0.0	RUNNELLS_2_SE
137315	96.7	0.0	SAC_CITY_5_S
137425	96.7	0.0	SAYLORVILLE_DAM
137602	59.0	0.0	SHELL_ROCK
137613	25.4	0.0	SHENANDOAH
137669	27.9	0.0	SIDNEY_1_NNW
137683	96.7	0.0	SIGOURNEY_2_S
137708	100.0	100.0	SIOUX_CITY_WSO_AP
137713	99.2	0.0	SIOUX_CITY_PERRY_CREEK
137844	99.2	99.2	SPENCER_1_N
137932	87.7	0.0	STEAMBOAT_ROCK
138004	100.0	0.0	STRATFORD_4_WSW
138009	29.5	0.0	STRAWBERRY_POINT
138266	26.2	0.0	TIPTON_4_NE
138270	33.6	0.0	TITONKA_4_NNW
138307	100.0	0.0	TRACY
138359	99.2	0.0	TURIN_4_S
138360	91.0	0.0	TURIN_4_SSW
138490	100.0	0.0	VAN_METER_2_SSE
138632	27.0	0.0	WALFORD_3_ESE
138655	84.4	0.0	WALNUT_CREEK_I80/35
138658	84.4	0.0	WALNUT_CREEK_NW_152ND_S
138668	98.4	0.0	WAPELLO
138688	32.0	0.0	WASHINGTON
138701	98.4	0.0	WATERLOO
138706	100.0	100.0	WATERLOO_WSO_AP
138742	27.9	0.0	WAUCOMA
138749	84.4	0.0	WAUKEE_2_NNW
138808	100.0	0.0	WEBSTER_CITY_2_S
139062	27.9	0.0	WILLIAMS
130131	82.8	0.0	ALGONA
132595	31.1	0.0	ELKADER
133003	94.3	0.0	FORT_DODGE

IOWA

Stn No	Precip Freq %	Temp Freq %	Stn Name
138860	82.0	0.0	WEST_DES_MOINES
134529	92.6	0.0	LADORA
135200	96.7	0.0	MARSHALLTOWN
136418	96.7	0.0	PANORA

KENTUCKY

Stn No	Precip Freq %	Temp Freq %	Stn Name
150063	98.4	0.0	ALBANY_4_N
150381	46.7	46.7	BARBOURVILLE_WATER_WORK
150422	99.2	90.2	BARREN_RIVER_RESERVOIR
150450	31.1	0.0	HARLAN
150619	67.2	88.5	BEREA_COLLEGE
150624	99.2	4.9	BEREA
150804	86.1	0.0	BLUE_LICK_SPRINGS
150872	75.4	0.0	BOSTON_2
150904	99.2	0.0	BOWLING_GREEN
150909	100.0	100.0	BOWLING_GREEN_FAA_AP
151080	89.3	87.7	BUCKHORN
151137	99.2	0.0	BURKESVILLE_2_W
151226	55.7	0.0	CALHOUN
151227	55.7	0.0	CALHOUN_LOCK_2
151294	27.9	0.0	CANEYVILLE_1_W
151306	100.0	0.0	CANTON_2_SE
151318	100.0	88.5	CARR_FORK_LAKE
151345	70.5	0.0	CARROLLTON_LOCK_1
151391	30.3	0.0	CAVE_CITY_4_E
151576	99.2	0.0	CLAY_CITY_WATER_WORKS
151640	27.0	0.0	CLOSPLINT_4_ESE
151663	99.2	0.0	COBB
151806	98.4	0.0	CORBIN
151855	100.0	100.0	COVINGTON_WSO_AIRPORT
151900	31.1	0.0	CRESTWOOD_8_E
151965	98.4	0.0	CUMBERLAND_2
151973	66.4	68.0	CUMBERLAND_GAP_PARK
152214	87.7	0.0	DIX_DAM
152250	28.7	0.0	DRY_RIDGE_KSP_POST_6
152500	25.4	0.0	ELIZABETHTWN_KSP_PST_4
152528	99.2	0.0	ELKHORN_CITY
152775	32.8	69.7	FALMOUTH
152791	93.4	87.7	FARMERS_2_S
152825	99.2	0.0	FISHTRAP_RESERVOIR
152953	99.2	0.0	FORD_LOCK_10
153028	77.0	0.0	FRANKFORT_LOCK_4
153030	30.3	0.0	FRANKFORT_STATE_POLICE
153078	99.2	0.0	FULLERS_STATION
153112	31.1	0.0	GAMALIEL
153203	75.4	0.0	GEST_LOCK_3
153223	93.4	0.0	GILBERTSVILLE_KY_DAM
153382	100.0	0.0	GRAY_HAWK
153389	90.2	90.2	GRAYSON_2_E
153398	63.1	0.0	GRAYSON_RESERVOIR
153426	50.0	0.0	GREEN_RIVER_POWER_STN
153430	50.0	0.0	GREENSBURG
153435	35.2	0.0	GREENSBURG_1_E
153714	97.5	0.0	HAZARD_WATERWORKS
153741	99.2	27.0	HEIDELBERG
153762	34.4	91.0	HENDERSON_7_SSW
153837	59.0	0.0	HIGH_BRIDGE_LOCK_7
153994	43.4	38.5	HOPKINSVILLE
153999	55.7	52.5	HOPKINSVILLE_RADIO_WHO
154093	41.0	0.0	HYDEN
154097	54.9	0.0	HYDEN_4_E
154200	93.4	0.0	JACKSON_#_2
154202	100.0	100.0	JACKSON_WSO
154650	32.8	0.0	LEBANON_5_S
154746	100.0	100.0	LEXINGTON_WSO_AIRPORT
154755	98.4	0.0	LIBERTY
154848	81.1	0.0	LLOYD_GREENUP_DAM
154857	99.2	0.0	LOCKPORT_LOCK_2
154954	100.0	100.0	LOUISVILLE_WSO_AIRPORT
154955	99.2	0.0	LOUISVILLE_UPPER_GAGE
155112	76.2	0.0	MANCHESTER_2
155233	17.2	45.1	MAYFIELD_RADIO_WNGO
155243	27.9	27.0	MAYSVILLE_SEWAGE_PLANT
155389	25.4	0.0	MIDDLESBORO
155524	99.2	0.0	MONTICELLO_3_NE
155606	31.1	0.0	MOUNT_EDEN_6_W
155834	99.2	90.2	NOLIN_LAKE_RESERVOIR
156012	99.2	0.0	OLIVE_HILL
156028	27.9	0.0	ONEIDA

KENTUCKY

Stn No	Precip Freq %	Temp Freq %	Stn Name
156110	100.0	100.0	PADUCAH_WSO
156126	100.0	0.0	PADUCAH_RIVER
156170	77.9	0.0	PARIS
156384	97.5	0.0	PINEVILLE
156728	99.2	0.0	RELIEF
156882	95.1	78.7	ROCHESTER_FERRY
157134	25.4	0.0	SALYERSVILLE
157161	98.4	0.0	SANDY_HOOK_4_SW
157324	27.9	27.9	SHELBYVILLE_1_E
157334	95.1	0.0	SHEPHERDSVILLE
157441	30.3	0.0	SLADE_5_NE
157508	28.7	0.0	SOMERSET_2_NE
157510	98.4	4.1	SOMERSET_2_N
157677	91.0	0.0	STEARNS_2_S
158070	27.0	0.0	TOMPKINSVILLE_9_NW
158348	98.4	0.0	VIRGIE
158446	99.2	0.0	WARSAW_MARKLAND_DAM
158486	98.4	0.0	WAYNESBURG_7_NE
158633	97.5	0.0	WHITESBURG
158709	99.2	38.5	WILLIAMSBURG
158824	95.9	0.0	WOODBURY
151505	27.9	0.0	SMITH_GROVE
157950	91.0	90.2	TAYLORSVILLE

MICHIGAN

Stn No	Precip Freq %	Temp Freq %	Stn Name
200135	68.9	87.7	ALLENDALE_3_ESE
200146	91.0	91.8	ALMA
200164	100.0	100.0	ALPENA_WSO_AIRPORT
200417	95.9	93.4	BAD_AXE
200446	70.5	70.5	BALDWIN_STATE_FOREST
200605	21.3	52.5	BEAR_LAKE_3_SSE
200632	28.7	0.0	BEAVERTON_1_ESE
200655	75.4	75.4	BELDING_4_WNW
200758	90.2	92.6	BEULAH_6_SW
200779	62.3	63.1	BIG_RAPIDS_WATERWORKS
201486	70.5	71.3	CHATHAM_EXP_FARM_2
201675	59.0	60.7	COLDWATER_ST_SCHOOL
201780	77.9	68.9	COPPER_HARBOR_FT_WILKIN
201800	77.9	77.9	CORNELL_4_WSW
202102	100.0	98.4	DETROIT_CITY_AIRPORT
202103	100.0	100.0	DETROIT_METRO_WSO_AP
202140	27.0	27.0	DIMONDALE_1_WSW
202308	25.4	0.0	DUNDEE
202391	86.9	87.7	EAST_LANSING
202395	96.7	95.9	EAST_LANSING_4_S
202437	32.0	0.0	EATON_RAPIDS_HAMLIN_BR
202626	82.0	74.6	ESCANABA
202691	32.0	0.0	FARMINGTON
202751	77.9	77.0	FENNVILLE
202754	25.4	0.0	FENTON_1_WNW
202846	100.0	100.0	FLINT_WSO_AP
203025	99.2	99.2	FREMONT_3_W
203183	97.5	97.5	GLENDORA_1_SSW
203303	93.4	93.4	GRAND_JUNCTION
203306	27.9	0.0	GRAND_LEDGE_1NW
203333	100.0	100.0	GRAND_RAPIDS_WSO_ARPT
203358	68.9	68.9	GRANT_4_ENE
203504	34.4	83.6	GULL_LAKE_EXPERIMENT_FA
203661	29.5	29.5	HASTINGS
203858	85.2	85.2	HOLLAND_HOPE_COLLEGE
203908	92.6	92.6	HOUGHTON_FAA_AIRPORT
203936	100.0	100.0	HOUGHTON_LAKE_WSO_AP
203973	96.7	96.7	HUDSONVILLE_2_W
204078	81.1	81.1	IONIA_1_WNW
204104	91.8	91.8	IRONWOOD_DAILY_GLOBE
204150	100.0	100.0	JACKSON_FAA_ARPT
204257	28.7	28.7	KALKASKA
204320	97.5	97.5	KENT_CITY_2_SW
204502	84.4	83.6	LAKE_CITY_EXP_FARM
204641	100.0	100.0	LANSING_WSO_AIRPORT
204955	36.1	36.1	LUDINGTON_6_SSE
205184	100.0	100.0	MARQUETTE_WSO
205452	83.6	84.4	MILFORD_GM_PROVING_GROU
205603	37.7	0.0	MORENCI
205650	87.7	86.9	MOUNT_CLEMENS_ANG_BASE
205712	100.0	100.0	MUSKEGON_WSO_AIRPORT
205892	59.0	0.0	NILES_1_NW
206007	60.7	60.7	NORTHPORT_2_W
206060	54.1	55.7	NUNICA_4_W
206158	82.0	82.0	TRAVERSE_CITY_12_NNE
206265	60.7	60.7	OSSINEKE_3_SW
206303	33.6	0.0	OXFORD
206405	63.1	58.2	PAW_PAW_2_E
206438	100.0	100.0	PELLSTON_FAA_AIRPORT
207072	35.2	0.0	ROCKFORD
207094	84.4	88.5	ROGERS_CITY
207103	27.9	77.9	ROMEO_2_S
207227	100.0	100.0	SAGINAW_FAA_AIRPORT
207230	31.1	61.5	SAGINAW_VALLEY_RES_FARM
207312	89.3	88.5	SALINE_4_SW
207350	87.7	87.7	SANDUSKY
207366	100.0	100.0	SAULT_STE_MARIE_WSO
207425	49.2	47.5	SEBEWAING_4_SE
207640	29.5	29.5	SODUS_EXPERIMENT_FARM
207730	43.4	51.6	SW_MI_RESEARCH_CNTR
207762	98.4	97.5	SPARTA_PEACH_RIDGE
207812	32.0	32.0	STAMBAUGH_2_SSE
207820	91.0	91.0	STANDISH_5_SW

MICHIGAN

Stn No	Precip Freq %	Temp Freq %	Stn Name
208184	83.6	83.6	THREE_RIVERS
208202	75.4	82.8	TIPTON_2_WNW
208251	100.0	100.0	TRAVERSE_CITY_FAA_AP
208417	89.3	89.3	VANDERBILT_STATE_FOREST
208468	76.2	78.7	VESTABURG
208690	91.8	97.5	WATERVLIET_3_S
208779	32.8	0.0	WEST_BLOOMFIELD
208967	26.2	0.0	WILLIAMSBURG_6_N
209006	25.4	0.0	WILLIAMSTON
201802	52.5	52.5	CORNELL
206012	65.6	65.6	TRAVERSE_CITY
206688	89.3	89.3	PORT_SANILAC

MINNESOTA

Stn No	Precip Freq %	Temp Freq %	Stn Name
210059	97.5	97.5	AITKIN_2_E
210075	91.8	94.3	ALBERT_LEA_3_SE
210112	100.0	100.0	ALEXANDRIA_FAA_AIRPORT
210157	23.8	25.4	AMBOY_4_E
210643	79.5	78.7	BEMIDJI
210939	83.6	84.4	BRAINERD
211063	100.0	100.0	BROWNS_VALLEY
211198	100.0	100.0	CALEDONIA
211227	100.0	100.0	CAMBRIDGE_STATE_HOSP
211263	100.0	100.0	CANBY
211891	93.4	99.2	CROOKSTON_NW_EXP_STN
212248	100.0	100.0	DULUTH_WSO_AP
212698	91.0	94.3	FAIRMONT
212721	100.0	100.0	FARIBAULT
212768	100.0	100.0	FERGUS_FALLS
212842	90.2	90.2	FLOODWOOD_4_N
213282	98.4	96.7	GRAND_MARAIS
213303	100.0	100.0	GRAND_RAPIDS_FORESTRY_L
213411	100.0	86.1	GULL_LAKE_DAM
213455	93.4	93.4	HALLOCK
213520	59.8	0.0	HARMONY
213567	94.3	0.0	HASTINGS_DAM_2
213730	100.0	100.0	HIBBING_FAA_AIRPORT
213962	94.3	94.3	HUTCHINSON_1_N
214026	100.0	100.0	INTERNL_FALLS_WSO_ARPT
214103	88.5	92.6	ISLE_12_N
214106	98.4	99.2	ITASCA_UNIV_OF_MINNESOT
214124	98.4	0.0	JACKSON
214418	96.7	0.0	LA_CRESCENT_DAM_7
214534	9.0	37.7	LAKE_WILSON
214546	100.0	100.0	LAMBERTON_SW_EXP_STN
214652	96.7	55.7	LEECH_LAKE_FEDERAL_DAM
214778	71.3	67.2	LITCHFIELD
215073	100.0	100.0	MANKATO
215204	75.4	82.8	MARSHALL
215325	73.8	83.6	MELROSE
215435	100.0	100.0	MINNEAPOLIS_WSFO_AP
215563	100.0	100.0	MONTEVIDEO_1_SW
215638	100.0	100.0	MORRIS_WC_EXP_STN
215665	26.2	26.2	MOUND
216152	94.3	94.3	OLIVIA
216166	64.8	0.0	ONAMIA_RANGER_STATION
216565	100.0	100.0	PIPESTONE
216612	100.0	73.0	POKEGAMA_DAM
216654	45.1	41.0	PRESTON
216822	100.0	100.0	RED_WING_DAM_3
216835	100.0	100.0	REDWOOD_FALLS_FAA_ARPT
216849	53.3	53.3	REMER_2
217004	100.0	100.0	ROCHESTER_WSO_AP
217107	100.0	100.0	ROSEMOUNT_AGRI_EXP_STN
217184	41.0	54.9	RUSHFORD
217294	100.0	100.0	ST_CLOUD_WSO_AP
217326	34.4	34.4	ST_JAMES_FILT_PLANT
217460	97.5	0.0	SANDY_LAKE_DAM_LIBBY
218247	29.5	87.7	THIEF_RIVER_FALLS_2
218450	100.0	100.0	UNIV_OF_MINN_ST_PAUL
218552	68.9	0.0	WABASHA
218679	100.0	99.2	WARROAD
218692	100.0	100.0	WASECA_EXP_STATION
218729	53.3	55.7	WATSON_1_NE
218986	71.3	72.1	WILD_RIVER_STATE_PARK
219004	100.0	100.0	WILLMAR_CNTY_HWY_GAR
219046	100.0	100.0	WINNEBAGO
219059	73.0	32.8	WINNIBIGOSHISH_DAM
219072	100.0	100.0	WINONA_DAM_5_A
219101	33.6	0.0	WINTON_POWER_PLANT
219170	100.0	100.0	WORTHINGTON_2_NNE
219249	25.4	24.6	ZUMBROTA

MISSOURI

Stn No	Precip Freq %	Temp Freq %	Stn Name
230031	96.7	0.0	AGENCY_4_NE
230204	79.5	80.3	APPLETON_CITY
230224	26.2	0.0	ARCADIA
230657	54.9	54.1	BILLINGS_2_N
230817	85.2	83.6	BOONVILLE
231145	56.6	0.0	BUTLER
231216	25.4	0.0	CAMERON
231275	100.0	0.0	CANTON_L_AND_D_20
231289	100.0	100.0	CAPE_GIRARDEAU_FAA_AIRP
231340	27.0	0.0	CARROLLTON
231364	13.9	85.2	CARUTHERSVILLE
231580	41.8	41.8	CHILLICOTHE_2_S
231640	96.7	0.0	CLARKSVILLE_L_&_D_24
231674	30.3	0.0	CLEARWATER_DAM
231791	100.0	100.0	COLUMBIA_WSO_AP
232220	45.1	0.0	DE_SOTO
232511	42.6	42.6	ELDORADO_SPRINGS
232568	45.9	46.7	ELM
232679	96.7	0.0	EUREKA_2_E
232700	63.9	0.0	EXCELSIOR_SPRINGS_4_S
232881	95.9	0.0	FISK_1_N
233043	27.0	0.0	FREEDOM
233079	95.9	95.9	FULTON
233094	87.7	87.7	GALENA
233420	62.3	0.0	GREENFIELD
233568	59.8	59.8	HAMILTON_2_W
233601	95.1	36.1	HANNIBAL_WATER_WORKS
233793	26.2	0.0	HERMANN
233838	59.0	59.0	HIGGINSVILLE
234154	50.0	50.0	INDEPENDENCE
234158	37.7	37.7	INDEPENDENCE_2
234271	25.4	25.4	JEFFERSON_CITY_WATER_PL
234315	100.0	99.2	JOPLIN_FAA_AIRPORT
234319	95.1	0.0	JOPLIN_RIVER
234358	100.0	100.0	KANSAS_CITY_WSMO_AP
234359	100.0	100.0	KANSAS_CITY_DOWNTOWN_AP
234505	26.2	0.0	KING_CITY
234544	82.8	82.8	KIRKSVILLE
234705	86.1	85.2	LAMAR
234978	19.7	47.5	LINNEUS
235027	77.0	71.3	LOCKWOOD
235298	45.1	29.5	MARSHALL
235307	45.9	0.0	MARSHFIELD
235340	68.0	68.9	MARYVILLE_2_E
235415	16.4	55.7	MC_CREDIE_EXPERIMENT_ST
235578	31.1	0.0	MILAN
235732	97.5	0.0	MONTICELLO_1_S
235734	97.5	0.0	MONTICELLO_3_SW
235834	49.2	48.4	MOUNTAIN_GROVE_2_N
235862	42.6	0.0	MT_VERNON_M_U_SW_CTR
235916	96.7	0.0	NAPOLEON
235987	84.4	85.2	NEVADA_SEWAGE_PLANT
236012	16.4	41.0	NEW_FRANKLIN_1_W
236045	36.9	0.0	NEW_MADRID
236302	27.9	0.0	OLDFIELD
236315	67.2	0.0	OLD_MONROE
236460	87.7	84.4	OZARK_BEACH
236495	95.9	0.0	PALMYRA_2_N
236791	54.9	52.5	POPLAR_BLUFF
236804	69.7	69.7	PORTAGEVILLE
236846	93.4	0.0	PRAIRIE_HILL_2_WNW
236934	42.6	0.0	PUXICO
237263	54.9	51.6	ROLLA_UNI_OF_MISSOURI
237300	75.4	69.7	ROSEBUD
237397	85.2	0.0	ST_CHARLES
237404	90.2	0.0	ST_FRANCISVILLE_1_N
237414	27.9	0.0	STE_GENEVIEVE_2_N
237452	68.9	69.7	ST_LOUIS_SCIENCE_CTR
237455	99.2	99.2	ST_LOUIS_WSCMO_AIRPORT
237497	71.3	0.0	ST_THOMAS
237506	25.4	0.0	SALEM
237578	99.2	0.0	SAVERTON_L_&_D_22
237862	91.0	0.0	SMITHVILLE_LAKE

MISSOURI

Stn No	Precip Freq %	Temp Freq %	Stn Name
237976	100.0	100.0	SPRINGFIELD_WSO_AP
238043	96.7	9.0	STEELVILLE_2_N
238063	54.1	0.0	STET_1_S
238171	86.9	0.0	SULLIVAN_3_SE
238223	82.8	82.0	SWEET_SPRINGS
238300	97.5	0.0	TAYLOR_5_SW
238515	83.6	0.0	UNION
238561	97.5	0.0	VALLEY_PARK
238614	82.8	80.3	VICHY_FAA_AIRPORT
238664	79.5	0.0	WACO_2_E
238700	96.7	0.0	WAPPAPELLO_DAM
238746	78.7	0.0	WASHINGTON
238771	97.5	0.0	WAYLAND_2_W
238880	49.2	48.4	WEST_PLAINS
234382	31.1	79.5	KEARNEY

OHIO

Stn No	Precip Freq %	Temp Freq %	Stn Name
330058	100.0	100.0	AKRON_CANTON_WSO_AP
330256	48.4	50.8	ASHLAND_2_SW
330279	59.0	60.7	ATHENS_1_E
330430	62.3	61.5	BARNESVILLE
331057	63.9	0.0	BUCKEYE_LAKE_2_WNW
331152	97.5	36.9	CADIZ
331178	91.0	91.0	CALDWELL_6_NW
331197	92.6	0.0	CAMBRIDGE
331288	53.3	52.5	CARPENTER_4_NW
331390	59.0	52.5	CELINA_3_NE
331541	98.4	54.1	CHIPPEWA_LAKE
331550	95.1	95.1	CINCINNATI_FERNBANK
331576	100.0	100.0	CINCINNATI_LUNKEN_FAA_A
331657	100.0	100.0	CLEVELAND_WSFO_AP
331777	98.4	0.0	COLUMBUS_MORSE_RD_WATER
331786	100.0	100.0	COLUMBUS_WSO_AIRPORT
331858	39.3	0.0	COOPERDALE
331905	91.0	91.0	COSHOCTON_AGR_RES_STN
332075	100.0	100.0	DAYTON_WSO_AP
332090	98.4	0.0	DEER_CREEK_DAM
332098	83.6	82.8	DEFIANCE
332119	89.3	89.3	DELAWARE
332124	97.5	0.0	DELAWARE_LAKE
332585	71.3	0.0	ELMORE_5_E
332599	57.4	59.0	ELYRIA_3_E
332626	99.2	40.2	ENTERPRISE
332727	27.9	0.0	FAYETTEVILLE
332786	100.0	100.0	FINDLAY_FAA_AIRPORT
332956	97.5	32.8	FREDERICKTOWN_4_S
332974	68.0	67.2	FREMONT_WATER_WORKS
333021	32.8	57.4	GALION_WATER_WORKS
333029	33.6	34.4	GALLIPOLIS
333292	73.0	0.0	GRAND_RAPIDS
333356	98.4	0.0	GREENFIELD_SEWAGE_PLANT
333393	60.7	0.0	GREER
333421	27.0	0.0	GROVER_HILL
333482	97.5	0.0	HAMILTON_2
333500	77.0	0.0	HANNIBAL_LOCK_&_DAM
333722	91.0	92.6	HICKSVILLE
333758	33.6	24.6	HILLSBORO
333838	48.4	0.8	HOPEDALE
333874	82.8	82.8	HOYTVILLE_2_NE
333915	50.0	0.0	HUNTSVILLE_3_N
334189	89.3	0.0	KENTON
334238	43.4	0.0	KINGS_MILLS
334319	70.5	0.0	LAGRANGE_1_NE
334403	89.3	0.0	LANCASTER
334434	39.3	0.0	LAURELVILLE
334551	35.2	35.2	LIMA_WWTP
334865	100.0	100.0	MANSFIELD_WSO_AP
334924	41.8	41.8	MARIETTA_LOCK_1
334927	90.2	28.7	MARIETTA_WWTP
334942	66.4	66.4	MARION_2_N
334944	23.8	73.0	MARION_3_SE
334967	69.7	0.0	MARSHALLVILLE
335029	28.7	0.0	MC_ARTHUR_2_N
335041	98.4	0.8	MC_CONNELSVILLE_LOCK_7
335268	94.3	93.4	MILFORD_2
335315	36.1	0.0	MILLPORT_2_NW
335438	81.1	82.0	MONTPELIER
335535	62.3	0.0	MOUNT_GILEAD
335669	68.0	79.5	NAPOLEON
335747	99.2	78.7	NEWARK_WATER_WORKS
335799	41.0	0.0	NEWCOMERSTOWN_WWTP
335857	27.9	27.0	NEW_LEXINGTON_2_NW
335894	86.1	0.0	NEW_PHILADELPHIA
335939	27.0	61.5	NEWPORT
336264	97.5	0.0	OLD_PORTAGE_RIVER
336405	61.5	59.0	PANDORA
336630	98.4	98.4	PIKETON
336861	40.2	0.0	PROSPECT
337120	60.7	68.9	RIPLEY_EXP_FARM
337255	42.6	0.0	ROSEVILLE

OHIO

Stn No	Precip Freq %	Temp Freq %	Stn Name
337303	62.3	0.0	RUGGLES_2_NE
337383	55.7	0.0	ST_MARYS_2_W
337400	53.3	0.0	ST_PARIS_1_SSW
337410	74.6	0.0	SALEM_CENTER_2_E
337538	75.4	0.0	SEDALIA
337857	36.1	36.1	SOUTH_POINT
337935	62.3	72.1	SPRINGFIELD_NEW_WTR_WKS
338313	46.7	46.7	TIFFIN
338357	100.0	100.0	TOLEDO_EXPRESS_WSO_AP
338539	56.6	56.6	UPPER_SANDUSKY_WATER_WK
338552	61.5	68.9	URBANA_WWTP
338609	41.0	68.9	VAN_WERT
338642	73.8	0.0	VERSAILLES
338769	29.5	27.0	WARREN_3_S
338822	14.8	47.5	WAUSEON_WATER_PLANT
339219	89.3	81.1	WILMINGTON_3_N
339224	75.4	75.4	WILMINGTON
339312	88.5	88.5	WOOSTER_EXP_STN
339406	100.0	100.0	YOUNGSTOWN_WSO_AP
339417	100.0	100.0	ZANESVILLE_FAA_AIRPORT
339427	81.1	0.0	ZANESVILLE_TELEMARK
331597	59.0	0.0	CIRCLEVILLE

WISCONSIN

Stn No	Precip Freq %	Temp Freq %	Stn Name
470124	95.1	0.0	ALMA_DAM_4
470239	69.7	69.7	ANTIGO_1_SSW
470273	63.1	63.1	ARBORETUM_UNIV_WIS
470308	61.5	61.5	ARLINGTON_EXP_FARM
470349	13.1	40.2	ASHLAND_EXP_FARM
470603	78.7	78.7	BAYFIELD_6_N
470696	92.6	93.4	BELOIT_COLLEGE
470892	25.4	0.0	BLANCHARDVILLE_POLICE_S
470904	51.6	81.1	BLOOMER_CITY_HALL
471205	38.5	38.5	BURLINGTON
471875	39.3	37.7	CRANDON_RANGER_STN
471913	63.1	62.3	CUBA_CITY
471923	58.2	56.6	CUMBERLAND
472001	88.5	84.4	DARLINGTON
472240	32.8	32.0	DRUMMOND_RANGER_STA
472314	72.1	62.3	EAGLE_RIVER
472428	100.0	100.0	EAU_CLAIRE_FAA_AIRPORT
472447	90.2	0.0	EAU_PLEINE
472996	50.0	50.0	GALESVILLE
473038	93.4	0.0	GENOA_DAM_8
473269	100.0	100.0	GREEN_BAY_WSO_AIRPORT
473405	19.7	51.6	HANCOCK_EXP_FARM
473453	91.0	91.0	HARTFORD_SEWAGE_PLANT
473800	53.3	73.8	HURLEY
474370	100.0	100.0	LA_CROSSE_WSO_AIRPORT
474379	98.4	0.0	LA_CROSSE_RIVER
474821	92.6	94.3	LONE_ROCK_TRI_CO
474937	97.5	0.0	LYNXVILLE_DAM_9
474961	100.0	100.0	MADISON_WSO_AIRPORT
475120	23.8	52.5	MARSHFIELD_EXP_FARM
475178	46.7	35.2	MAUSTON
475255	80.3	77.9	MEDFORD_1_SW
475474	59.8	54.9	MILWAUKEE_MT_MARY_COL
475479	100.0	100.0	MILWAUKEE_WSO
475718	87.7	0.0	MUSCODA
475932	34.4	0.0	NEW_LONDON
476200	92.6	91.8	OCONOMOWOC_1_SW
476330	96.7	98.4	OSHKOSH
476398	96.7	98.4	PARK_FALLS
476678	91.8	0.0	PLYMOUTH
476718	99.2	99.2	PORTAGE
476922	64.8	66.4	RACINE
476939	90.2	0.0	RAINBOW_RESERVOIR
477113	87.7	0.0	RHINELANDER_WATER_WORKS
477132	44.3	65.6	RICE_LAKE
477140	90.2	0.0	RICE_RESERVOIR
477158	98.4	98.4	RICHLAND_CENTER
477226	38.5	36.1	RIVER_FALLS
477349	15.6	72.1	ROSHOLT_9_NNE
477997	59.8	59.8	SPARTA
478027	23.0	45.9	SPOONER_EXPERMNT_FARM
478171	88.5	0.0	STEVENS_POINT
478267	20.5	54.1	STURGEON_BAY_EXP_FARM
478589	94.3	0.0	TREMPEALEAU_DAM_6
478672	82.8	82.0	TWO_RIVERS
478919	85.2	85.2	WATERTOWN
478963	89.3	0.0	WAUSAU_7_SSW
478968	100.0	100.0	WAUSAU_AIRPORT
479236	86.1	0.0	WILLOW_RESERVOIR
479319	92.6	92.6	WISCONSIN_DELLS
479345	90.2	0.0	WISCONSIN_RPDS_GRND_AVE
472842	42.6	12.3	FOND_DU_LAC
474027	30.3	0.0	JIM_FALLS
479974	64.8	66.4	Poplar
479978	89.3	91.0	Sarona
479963	82.0	80.3	Harrison
479967	91.0	92.6	Lake_Thompson
479971	90.2	92.6	Phillips
479976	87.7	87.7	Rib_Mountain
479957	54.1	54.9	Altoona
479959	66.4	66.4	Baldwin
479962	95.1	93.4	Green_Lake
479968	95.1	95.9	Markesan

WISCONSIN

Stn No	Precip Freq %	Temp Freq %	Stn Name
479969	67.2	65.6	Marshfield
479973	68.9	68.0	Plover
479953	49.2	96.7	Neenah_Radar
479954	33.6	33.6	Fond_du_Lac
479986	95.9	69.7	Sheboygan_CG
479987	96.7	70.5	Sturgeon_Bay_CG
479960	77.0	71.3	Beloit_NW
479965	90.2	91.0	Juneau
479951	79.5	77.9	Whitnall_Park
479970	91.8	92.6	Newburg
479984	96.7	78.7	Milwaukee_CG
479985	96.7	68.9	Kenosha_CG

APPENDIX E.

Hourly Station Listing Grouped by State

The following table lists NWS hourly stations in and adjacent to the MCC region. Daily humidity, wind, pressure, evapotranspiration and solar radiation data are derived from the hourly station data. NWS first order stations (observations taken 24 hours a day) are in bold type, while supplemental airport stations (observations taken only during operating hours) are in regular type. The MCC has historical data (prior to 1990) for first order stations only.

STATE	STATION NAME	CODE
ILLINOIS:	**Chicago (Midway)**	**MDW**
	Chicago (O'Hare)	**ORD**
	Moline	**MLI**
	Peoria	**PIA**
	Rantoul	**RTL**
	Rockford	**RFD**
	Springfield	**SPI**
	Alton	ALN
	Aurora	ARR
	Bloomington	BMI
	Carbondale	MDH
	Champaign/Urbana	CMI
	Chicago (Meigs)	CGX
	Chicago Dupage	DPA
	Danville	DNV
	Decatur	DEC
	East St Louis	CPS
	Galesburg	GBG
	Marion	MWA
	Marseilles	MMO
	Mount Vernon	MVN
	Quincy	UIN
INDIANA:	**Evansville**	**EVV**
	Fort Wayne	**FWA**
	Indianapolis	**IND**
	South Bend	**SBN**
	Bloomington	BMG
	Columbus	BAK
	Elkhart	EKM
	Gary	GYY
	Muncie	MIE
	Terre Haute	HUF
	West Lafayette	LAF

IOWA:	**Burlington**	**BRL**
	Des Moines	**DSM**
	Dubuque	**DBQ**
	Mason City	**MCW**
	Sioux City	**SUX**
	Cedar Rapids	CID
	Fort Dodge	FOD
	Lamoni	30I
	Ottumwa	OTM
	Waterloo	ALO
KENTUCKY:	**Covington (Cincinnati)**	**CVG**
	Lexington	**LEX**
	Louisville	**SDF**
	Paducah	**PAH**
	Jackson	JKL
	London	LOZ
	Owensboro	OWB
	Pikeville	5I3
MICHIGAN:	**Alpena**	**APN**
	Detroit	**DET**
	Flint	**FNT**
	Gwinn	**SAW**
	Muskegon	**MKG**
	Sault Ste Marie	**SSM**
	Traverse City	**TVC**
	Ann Arbor	ARB
	Battle Creek	BTL
	Benton Harbor	BEH
	Copper Harbor	P59
	Detroit Metro	DTW
	Escanaba	ESC
	Grand Rapids	GRR
	Harbor Beach	P58
	Houghton	CMX
	Houghton Lake	HTL
	Ironwood	IWD
	Iron Mountain	IMT
	Kalamazoo	AZO
	Lansing	LAN
	Manistee	MBL
	Marquette	MQT

Michigan (cont.)	Menominee	MNM
	Pellston	PLN
	Pontiac	PTK
	Saginaw	MBS
	Sault Ste Marie	CIU
	Seul Choix Point	P75
MINNESOTA:	**Duluth**	**DLH**
	International Falls	**INL**
	Minneapolis StPaul	**MSP**
	St Cloud	**STC**
	Alexandria	AXN
	Bemidji	BJI
	Brainerd	BRD
	Detroit Lakes	DTL
	Ely	ELO
	Fairmont	FRM
	Fergus Falls	FFM
	Grand Rapids	GPZ
	Hibbing	HIB
	Mankato	MKT
	Marshall	MML
	Park Rapids	PKD
	Pequot Lake	P39
	Redwood Falls	RWF
	Rochester	RST
	Saint Paul	STP
	Thief River Falls	TVF
MISSOURI:	**Columbia**	**COU**
	KansasCity (Airport)	**MCI**
	KansasCity (Downtown)	**MKC**
	Springfield	**SGF**
	St Louis	**STL**
	Cape Girardeau	CGI
	Jefferson City	JEF
	Joplin	JLN
	Kirksville	IRK
	Poplar Bluff	PO2
	St Joseph	STJ
	Vichy	VIH
NEBRASKA:	**Omaha**	**OMA**

NORTH DAKOTA:	**Fargo**	**FAR**
OHIO:	**Cincinnati (Covington)**	**CVG**
	Cleveland	**CLE**
	Columbus	**OSU**
	Dayton	**DAY**
	Toledo	**TOL**
	Akron	CAK
	Cincinnati Lunken	LUK
	Findlay	FDY
	Mansfield	MFD
	Willoughby	LNN
	Wright Patterson	FFO
	Youngstown	YNG
	Zanesville	ZZV
PENNSYLVANIA:	**Pittsburg**	**PIT**
SOUTH DAKOTA:	**Sioux Falls**	**FSD**
TENNESSEE:	**Bristol**	**TRI**
	Memphis	**MEM**
	Nashville	**BNA**
WEST VIRGINIA:	**Charleston**	**CRW**
WISCONSIN:	**Eau Claire**	**EAU**
	Green Bay	**GRB**
	LaCrosse	**LSE**
	Madison	**MSN**
	Milwaukee	**MKE**
	Appleton	ATW
	Janesville	JVL
	Lone Rock	LNR
	Mosinee	CWA
	Oshkosh	OSH
	Rhinelander	RHI
	Rice Lake	RIE
	Sturgeon Bay	SUE
	Wausau	AUW